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11th Issue

SWR

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SPRING AND PROPAGATION

THE ART OF
LISTENING TO THE
AIR

UNDERSTANDING DIGITAL VOICE IN HAM RADIO

A HANDY GUIDE TO AUDIO IN
DIGITAL MODES

SULA

A RECEIVING ANTENNA
FOCUSED ON SIGNAL-TO-
NOISE RATIO

GEOGRAPHY AND HAM RADIO

LEARNING MAPS AND ROUTES WITH
VHF AND UHF

T41-EP

SOFTWARE-DEFINED
TRANSCEIVER T41-EP (SDR)

Introduction

On the Cover

In this edition, we highlight AC9XK Alexandra A. Mahurin, captured while enjoying her passion for radio in a park, experiencing the unique connection this hobby offers with the world. Alexandra is a third-generation ham radio operator and the first young woman in her family to earn her license, carrying forward a family tradition full of stories and memories. Her love for radio began with her grandfather, Neil Sullivan (VE4XC), one of Manitoba's pioneering hams, who served as a communications officer in the Royal Canadian Navy during World War II and

devoted over six decades to his passion, becoming a cornerstone of the ham radio community and a strong supporter of the Manitoba Amateur Radio Museum.

Her father, Tom Auvinen (N3EEF), also shared his enthusiasm for radio, and from an early age Alexandra experienced magical moments with him, listening to CW transmissions and experimenting with Morse code keys. After inheriting part of her father's equipment, she felt both the inspiration and the responsibility to keep that legacy alive, which led her to earn her own license. Since then, her journey has been remarkable: advancing from Technician to General, and ultimately achieving her Extra Class license while also becoming a Volunteer Examiner. In 2023, she received her Canadian callsign VA4LEX, which she proudly uses when operating from Canada.

The cover image captures not only her dedication and family legacy, but also the excitement and joy of being on the air, sending signals that connect generations. It's a powerful reminder that ham radio is more than just a hobby, it's a lifelong passion that transcends time and brings families and communities together.



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SWR Magazine

Connecting Passions, Inspiring Operators

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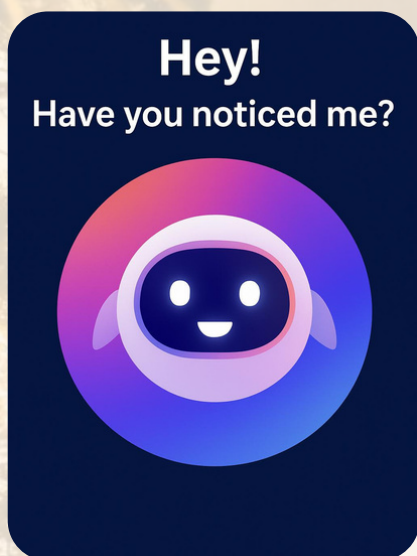
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Photo by: N4MJL

Ham radio turns the airwaves into a bridge, connecting voices and friendships beyond borders.



Have you noticed this icon in SWR Magazine?

Look for it in the lower right corner of each edition! It's our AI Chatbot, an interactive tool designed to help you explore our content. Ask it any question and get accurate answers instantly, based directly on what you are reading. Give it a try!



DXE-160VA-1 Vertical Antenna

Ideal for 160 m in small spaces



The DXE-160VA-1 Thunderbolt® is a single-band vertical antenna designed for the 160m band, ideal for operators with limited space. Standing 16.8m tall and featuring a capacitive top-hat, it delivers strong performance without occupying the footprint of a traditional half-wave antenna. Constructed from aerospace-grade aluminum and stainless steel hardware, it offers durability and stability against wind and corrosion. Its bandwidth of approximately 40 kHz covers the most commonly used CW and voice segments and can handle up to 5 kW of power.

Thanks to its pivoting base and compact design, installation and maintenance are straightforward. Even with a moderate number of radials, it achieves low SWR and a favorable radiation angle for long-distance (DX) contacts.

In short, the DXE-160VA-1 combines efficiency, ruggedness, and space optimization, making it an excellent choice for home stations that want to operate on 160 m without a large property.

Photo by: onallbands.com



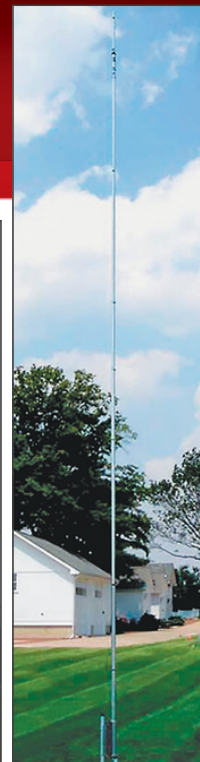
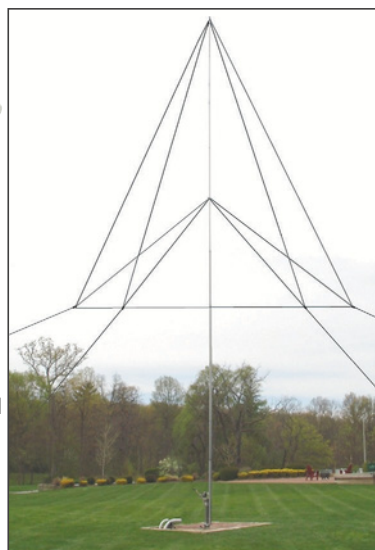
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Make the Change to a More Satisfying Ham Radio Purchasing Experience

EDITORIAL

TRANSMITTING HISTORY AND THE FUTURE



Photo by: G8AJM

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M

arch has been a whirlwind month for SWR Magazine, full of excitement, achievements, and new adventures. We have continued our rise on a global scale, bringing our passion for ham radio to more corners of the world than ever before. This month, we are proud to announce the launch of our first Italian edition, a milestone that brings us closer to ham radio operators worldwide and reflects our belief that radio knows no borders. Our gratitude is deep and sincere. To you, our readers, for joining us on every page, for sharing your enthusiasm, and for keeping the spark of ham radio alive; to our subscribers, for trusting us and allowing us to be part of your world; and to our sponsors, both new and long-standing, whose support allows us to grow and dream big. Thanks to your confidence, we have been able to add new sections, welcome new contributors, and enrich each issue with more content

that celebrates this hobby that unites us. Looking back, we fondly remember the nostalgia of early equipment, long nights on the air, and moments shared with fellow hams from past generations. These memories inspire every article, every story, and every project we undertake, and they drive us to continue connecting the ham radio community in a unique way.

Soon we will celebrate our first anniversary, a journey made possible thanks to all of you, and we will do so in style, with surprises and new features that fill us with excitement. April brings new opportunities for growth, more stories to share, more voices to hear, and more signals crossing the airwaves to bring us all closer together.

The sky is the limit, and together we continue making ham radio a passion that transcends generations. Thank you for being part of this journey.

With gratitude and enthusiasm,
The SWR Magazine Team



Photo by: wb0isg.com

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WORLD NEWS

YL WORLDWIDE PROMOTES FEMALE PARTICIPATION IN HAM RADIO

The international YL Worldwide event continues to establish itself as one of the most important initiatives for promoting female participation in ham radio, bringing together operators from multiple countries each year for a global day of activity across various bands and modes. This event stands out not only for its growing number of participants, but also for its impact on inclusion and technical development within the hobby. Through international contacts and collaboration between stations, the event encourages learning, visibility, and the integration of new generations of female ham operators. With an increasingly diverse and active community, YL Worldwide has become a benchmark in the modern evolution of ham radio, demonstrating that the future of the hobby is shaped by inclusion, innovation, and global participation.

HAMVENTION 2026 AWARDS ANNOUNCED



The Dayton Hamvention, the world's largest ham radio convention, celebrated outstanding members of the community in 2026 for their leadership, innovation, and service.

Among the awardees:

Technical Achievement Award: Robert "Bob" Famiglio, K3RF, for nearly six decades of contributions in engineering, emergency communications, and regulatory advising.

Ham of the Year: Dr. José "Otis" Vicens, NP4G, from Humacao, Puerto Rico. Licensed since his teenage years, Vicens is internationally recognized in the DX community and has participated in DXpeditions to remote locations such as Bouvet Island. He has led the Puerto Rico Amateur Radio League and currently serves as president of the International DX Association (INDEXA), in addition to supporting emergency communications during hurricanes.

Special Achievement Award: Martha Fell, N3QBE, and Joe Fell, W3GMS, for decades of mentorship and technical education.

Club of the Year: Long Island CW Club, for its global promotion of Morse code and mentorship programs.



WORLD NEWS

NEW COURSES PROMOTE HAM RADIO AMONG YOUTH

Organizations such as the ARRL are strengthening ham radio education through the development of new courses and materials aimed at young people interested in wireless communications. These initiatives include online training, classroom activities, and hands-on workshops focused on technical skills and emergency communications.

Through educational platforms and school programs, content is being offered that promotes STEM skills and interest in technology-related careers. With an expanding educational offering, these efforts aim to ensure the next generation of ham radio operators, preparing young enthusiasts with up-to-date knowledge and a strong technological vision.

ARRL Outreach to Youth & Education Programs. Available at: <https://www.arrl.org/outreach-to-youth>

BAND PLAN CHANGES REFLECT SPECTRUM EVOLUTION



The Australian Communications and Media Authority (ACMA) has implemented recent adjustments to Australia's amateur radio band plans, aiming to optimize spectrum use and adapt it to new communication technologies. These changes are part of an effort to align spectrum management with international recommendations and ensure fair and efficient access for all operators.

Key modifications include the reorganization of HF, VHF, and UHF segments for various modes, including voice, CW, and digital. Clear limits have been defined to reduce interference and enable new applications, such as advanced digital modes and SDR (Software Defined Radio) experimentation. Power allocations and permissions for certain experimental bands have also been adjusted, providing greater flexibility for advanced operators.

These changes reflect a global trend in ham radio: modernizing the bands and supporting the coexistence of traditional and emerging technologies. ACMA emphasizes the importance of long-term planning to maintain the relevance of the hobby, ensure communication safety, and support the development of young enthusiasts and educational programs.

Spring and Propagation, The Art of Listening on the Air

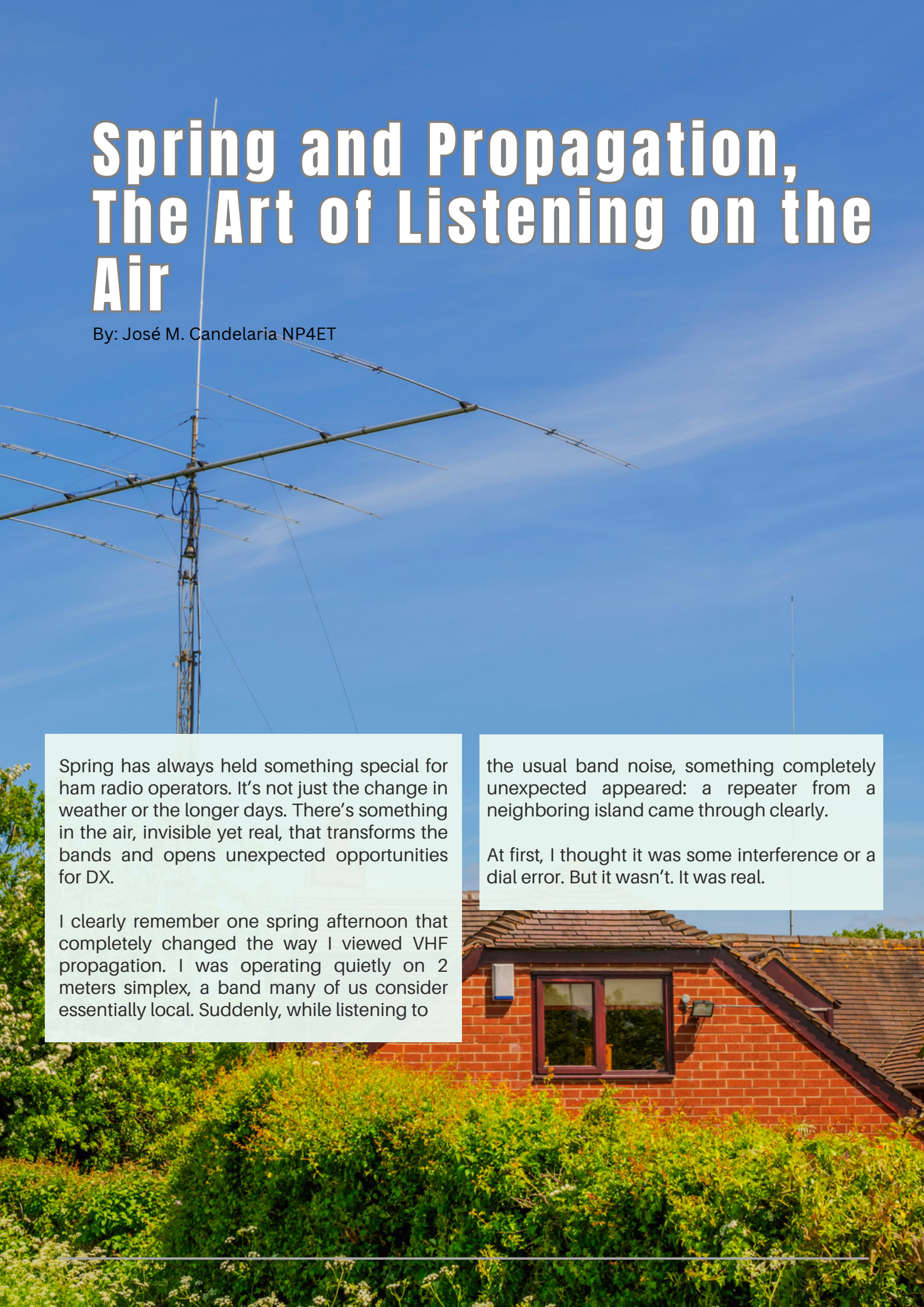
By: José M. Candelaria NP4ET

Spring has always held something special for ham radio operators. It's not just the change in weather or the longer days. There's something in the air, invisible yet real, that transforms the bands and opens unexpected opportunities for DX.

I clearly remember one spring afternoon that completely changed the way I viewed VHF propagation. I was operating quietly on 2 meters simplex, a band many of us consider essentially local. Suddenly, while listening to

the usual band noise, something completely unexpected appeared: a repeater from a neighboring island came through clearly.

At first, I thought it was some interference or a dial error. But it wasn't. It was real.



There it was, a repeater that would normally be far beyond the usual reach of 2 meters, coming in with a surprisingly clear signal. It was the first time I experienced VHF tropospheric ducting so visibly.

That moment was eye-opening. I realized that even on bands many consider "local," nature still holds extraordinary surprises for those who pay attention.

That day, I made a decision: if the air was capable of opening these invisible highways for radio signals, I needed to be ready to take advantage of them. That's when I built a 10-element Yagi antenna for 2 meters.

The difference was immediate.

With a properly aimed directional antenna, higher gain, and a more focused radiation lobe, DX contacts began appearing that had once seemed impossible. Communications spanning hundreds of kilometers became frequent during tropospheric propagation events. On some occasions, even distances near or exceeding a thousand kilometers became possible under favorable atmospheric conditions.

That was the moment I understood that VHF and UHF have their own DX world too, it just requires observing the sky in a different way.



Photo by: Qrper.com

Spring Also Awakens the Ionosphere

But spring doesn't just favor tropospheric propagation. It also has notable effects on the ionosphere, directly impacting the HF bands.

During this season, changes in atmospheric temperature, pressure, and solar dynamics affect the behavior of the ionospheric layers, particularly the F2 layer, which is responsible for long-distance HF hops.

In spring, the F2 layer often shows greater variability and dynamism, allowing longer DX openings on bands such as:

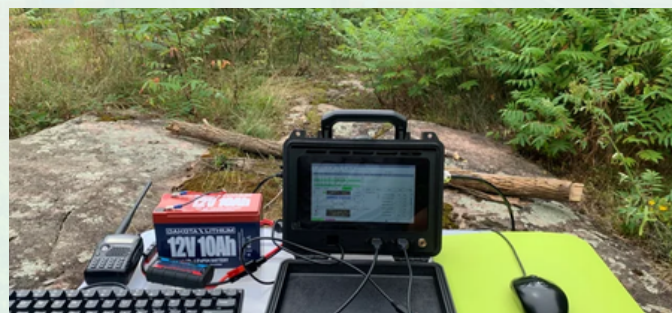
- 20 meters (14 MHz)
- 40 meters (7 MHz)

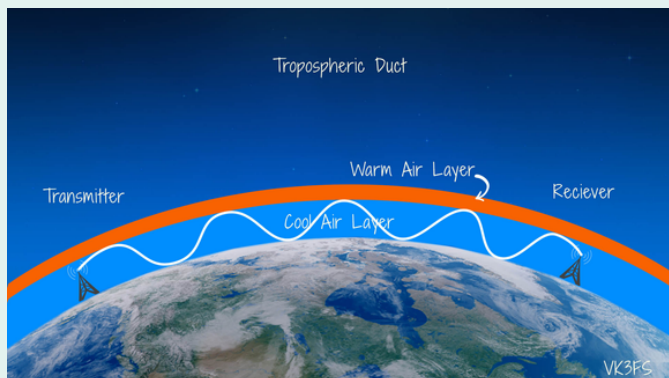
These bands often stay open longer, facilitating intercontinental contacts.

Meanwhile, the higher bands begin to show fascinating behavior. The 10-meter band (28 MHz) can open during periods of higher solar activity, allowing global communications at relatively low power.

But perhaps the most interesting band during this season is 6 meters (50 MHz). Known among ham radio operators as "the magic band," 6 meters occupies a unique position between HF and VHF. It can benefit from both ionospheric and tropospheric propagation.

During spring and summer, this band can experience Sporadic E (Es) propagation, where ionized clouds in the E layer reflect VHF signals over long distances. This can produce hops of 800 to 2,000 kilometers with surprisingly strong signals.





Tropospheric Ducting: Invisible Highways in the Atmosphere

Tropospheric propagation occurs within the troposphere, the lowest layer of Earth's atmosphere, where most weather phenomena take place. Normally, VHF and UHF signals travel in a straight line, limited by the horizon. However, when a temperature inversion occurs, the behavior of radio waves changes.

A temperature inversion happens when:

- Warm air becomes trapped below
- A layer of cooler air lies above

This temperature gradient causes a change in the air's refractive index, bending the radio waves and trapping them between these layers, forming what is known as a tropospheric duct. Within this duct, signals can travel enormous distances with relatively low loss. Essentially, the air becomes a natural waveguide.

Typical distances can be:

- 100 – 300 km with moderate tropospheric conditions
- 500 – 800 km in well-formed ducts
- 1000 km or more in exceptional events

These events are particularly common over large bodies of water.

- In coastal regions
- During high-pressure systems
- On clear nights followed by warm mornings

For this reason, coastal operators often experience spectacular openings on 2 meters and 70 centimeters.

How to Take Advantage of Tropospheric Propagation

Over the years, I've learned that taking advantage of these events isn't just a matter of luck. Several technical factors can significantly increase the chances of success.

Directional Antennas

A multi-element Yagi can make a huge difference. Antennas with 8 to 12 elements for 2 meters offer 10 to 14 dBi of gain, allowing you to focus energy toward the duct's direction.

Antenna Height

The higher the antenna above ground, the better the signal's takeoff angle.

Typical effective heights:

- 10 to 20 meters for home stations
- Higher if possible in coastal locations

Low Radiation Angle

DX contacts on VHF usually occur at very low angles, almost parallel to the horizon. That's why it's important to aim antennas toward the horizon.

Correct Polarization

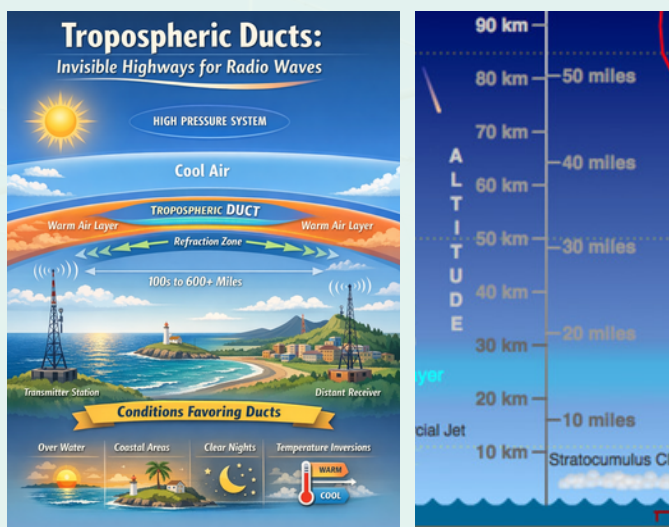
Most VHF systems use vertical polarization, especially repeaters. Maintaining proper polarization avoids losses of up to 20 dB.

Monitor the Weather

Some clear signs of tropospheric propagation include:

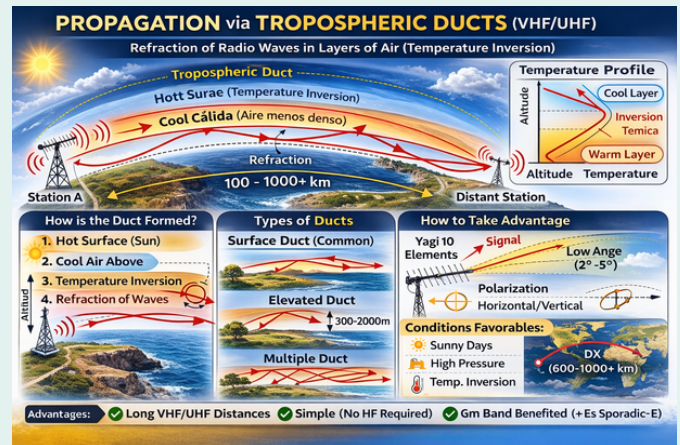
- High atmospheric pressure
- Clear skies
- Temperature inversions
- Significant differences between air and water temperatures

Today, tropospheric prediction maps are available, allowing operators to anticipate these events.



The Magic of Hearing the Unexpected

That spring afternoon, when I heard a distant repeater on 2 meters for the first time, completely changed my perspective on ham radio. Until that moment, I had mainly seen the VHF bands as a space for local communications: nearby repeaters, regional simplex, and relatively short contacts. However, that day the atmosphere reminded me that radio can always surprise us. Hearing that signal come in from so far away was a revealing experience. First came the surprise, then the confirmation when I identified the repeater, and finally the excitement of realizing I was witnessing a rare propagation phenomenon. That's when I understood something fundamental: the bands are never truly "closed."



Often, they are simply waiting for the right conditions.

The Earth's atmosphere is constantly changing. Variations in temperature, pressure, and humidity can alter how radio waves travel through the air. When temperature inversions and tropospheric ducts form, signals that would normally travel only tens of kilometers can cover hundreds or even more.

In those moments, the VHF and UHF bands stop behaving like simple line-of-sight systems. Distant stations begin appearing in the receiver, far-off repeaters come in clearly, and the attentive operator discovers that the radio horizon can extend far beyond what we normally imagine.

Experiences like that taught me to listen to the bands more carefully and to take advantage of the opportunities nature provides. Because every unexpected signal that appears in the receiver is proof that something interesting is happening in the atmosphere.

And in those moments, the air is no longer just air.

It becomes an invisible highway for radio waves.



Photo by: onallbands.com

From Amateur Satellites to the First Human Voices (Part 2)

By: Juan Montijo WP4OV

From SAREX to the International Space Station

Following the success of the first contacts from the Space Shuttle, ham radio on crewed flights moved from being an isolated experience to a formally organized activity. This led to the creation of SAREX (Shuttle Amateur Radio Experiment), a program that integrated ham radio as a planned part of space missions. SAREX introduced a model that is still used today: brief, carefully scheduled contacts.

With a strong educational focus. Schools and youth organizations would prepare questions, students would track the orbital pass, and for a few minutes, the classroom would transform into a real space station. Ham radio thus demonstrated its immense value as an educational tool in science and technology.

The true turning point came with the International Space Station (ISS). Unlike the Shuttle, the ISS offered something completely new: a permanent human presence in orbit.

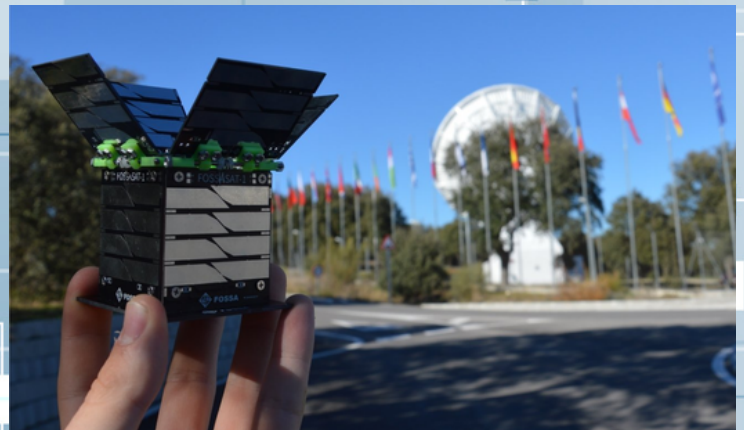


Photo by: Amsat

Since 2000, ham radio has been part of the station's permanent equipment thanks to the ARISS (Amateur Radio on the International Space Station) program.

ARISS is an international initiative that coordinates space agencies and ham radio organizations around the world. Its goal is clear: to connect students with astronauts through ham radio, inspiring STEM careers in a direct and memorable way.

Today, licensed astronaut ham operators regularly operate from the ISS. ARISS manages school requests, schedules contact windows, and provides technical guides to ensure that each communication is a meaningful educational experience.

Thousands of students, in dozens of countries, have spoken directly with crew members in orbit.

Ham radio was no longer just an experimental activity from space; it had become a sustained and globally recognized educational program.

In the third and final part, we will see how these transmissions are not limited to schools, and how any ham radio operator, even with a modest station, can listen in and participate.

DXpeditions

DXpeditions are the ultimate expression of passion for ham radio. Intrepid operators transport their equipment to remote islands, isolated mountains, and forgotten coastlines, braving the elements and distance. Every contact they make is an invisible bridge connecting people, cultures, and continents through radio waves. Thanks to these adventures, the most remote places on the planet cease to be unreachable and become part of our global ham radio community.



01. J51A Bijagos

The J51A team will be active from the Bijagós Archipelago, IOTA AF-020, in Guinea-Bissau, during February – March 2026.

Team:

DA1DX, DK9IP, DL8LAS, DM5EE, DM6EE
Latest DX Spots for J51A.

01



Guinea-Bissau: at the western edge of the continent

A jeep covered in red dust stops in front of two border posts with a rope stretched between them. A little further on, there's a shelter made of palm leaves, where a curious white-nosed monkey is tied to a bench. A border guard emerges from under the canopy, lowers the rope, and stamps your passport. The road into Guinea-Bissau is open!

This country is located at the westernmost edge of the African continent. Its territory is small, but its population is diverse, made up of 16 indigenous African ethnic groups. Each has its own language, often very different from that of their neighbors.

For this reason, many people communicate in Guinea-Bissau Creole, a blend of Portuguese and words from African languages.



02.

TX5EU Raivavae

The TX5EU team will be active from Raivavae Island, IOTA OC-114, in the Austral Islands, French Polynesia, from March 12 to 25, 2026.

Team:

PG5M – Gerben

PA3EWP – Ron

DL2AMD – Rainer

PA2KW – Evert

DK2AMM – Ernö

DL2AWG – Guenter (leader)

03.

LUIZA Isla Laurie South Orkney Islands

Ramón, LUIDMZ, is currently active as LUIZA from the Orcadas Naval Detachment on Laurie Island, South Orkney Islands, IOTA AN-008.

He plans to remain active until the end of 2026.

Latest DX Spots: LUIZA

QTH Locator: GC79pg



02

Coral reefs, uninhabited atolls, pristine ocean waters, and rituals preserved since time immemorial... All of this is part of the mysterious and beautiful Austral Islands.

They are barely visible on the map, and you'll probably have to study the Pacific region near Australia for quite some time to find this group of two archipelagos.

But it's absolutely worth discovering them! Because you won't see anything like this anywhere else in the world.

03

Every February 22, Argentina celebrates Argentine Antarctica Day, commemorating the raising of its flag in 1904 at Orcadas Base, located on Laurie Island in the South Orkney Islands.

This was one of the first bases in Antarctica and, for decades, the only one with a permanent scientific presence. Prior to that, the Argentine explorer José María Sobral had already spent a winter on the continent as part of a Swedish expedition.



Photo by: ARRL

THE HAM RADIO ROUTE

By: Keith Schreiter, N9QDS

COMMUNICATIONS MUSEUMS YOU MUST VISIT

There is something profoundly special about standing face-to-face with history, especially when that history shaped the world of communications as we know it today. For ham radio operators, visiting communications museums is much more than a casual activity; it is an opportunity to reconnect with the origins of the hobby and gain a deeper understanding of the technologies, innovations, and people who made modern radio possible.

From the earliest spark transmitters and maritime stations to broadcasting studios and telephone exchanges, these museums preserve the milestones that define our shared technical legacy. Many are run by passionate volunteers who keep radio history alive, and in many cases, they feature working equipment that can be experienced firsthand. Hearing a

Morse circuit or seeing a restored transmitter in operation creates a connection that no book or video can match.

Whether you are planning a road trip, attending a hamfest, or exploring a new city, adding a communications museum to your itinerary can turn an ordinary visit into a meaningful journey through time. These experiences not only provide technical knowledge but also foster a renewed appreciation for the creativity, experimentation, and dedication that drive ham radio.

Featured Museums (Editorial Selection)

Below is a small selection of communications and radio museums. Each offers a unique perspective on our shared technical legacy:

- ARRL History Museum (Connecticut) – Located at the ARRL headquarters, it preserves the legacy of ham radio and its global impact.
- Maritime Radio Historical Society – KPH (California) – One of the last operational maritime coastal stations, where you can see telegraphy in action.
- Pavek Museum of Electronic Communication (Minnesota) – Notable collection of radio, television, and broadcasting technology.
- National Capital Radio & Television Museum (Maryland) – Interactive experience on the development of radio and television.
- Spark Museum of Electrical Invention (Washington) – Unique exhibits on electricity and the beginnings of communications.
- Voice of America Museum (Ohio) – Showcases the global impact of international broadcasting during key historical moments.



Foto de: 1059themountain.com

In this edition, we present a curated selection of prominent museums related to radio and communications in the United States, along with a complete directory organized by state. This directory is based on research compiled by Keith Schreiter, N9QDS, and has been edited for SWR Magazine as a practical resource for operators.

A full and updated version of this directory will also be available as a downloadable resource. We invite you to access the complete list and start creating your own ham radio travel itinerary.

Ham radio is not just about making contacts; it is also about preserving knowledge, honoring those who came before us, and inspiring those who will follow. Visiting these museums is one of the most tangible ways to experience that legacy and keep the spirit of radio alive.

Link to museum directory:

[List](#)

PROTECTION AGAINST **ELECTROSTATIC DISCHARGE (ESD)**: IS IT STILL NECESSARY?



Sherlock Holmes Investigates

By: Anonymous

The following account comes from my careful notes taken during one of Mr. Holmes's demonstrations in the laboratory, Watson

Holmes was examining a small integrated circuit with his magnifying glass when I entered the laboratory. The device rested on the workbench alongside several instruments, and its outward appearance was perfectly ordinary.

"What you see before you, Watson," Holmes said quietly, "are the remains of a failure."

I looked more closely, but I could detect nothing out of the ordinary.

"It appears intact."

"Exactly," Holmes replied. "And yet the circuit has been destroyed. The culprit in this case is electrostatic discharge, one of the most difficult hazards to detect in modern electronics."

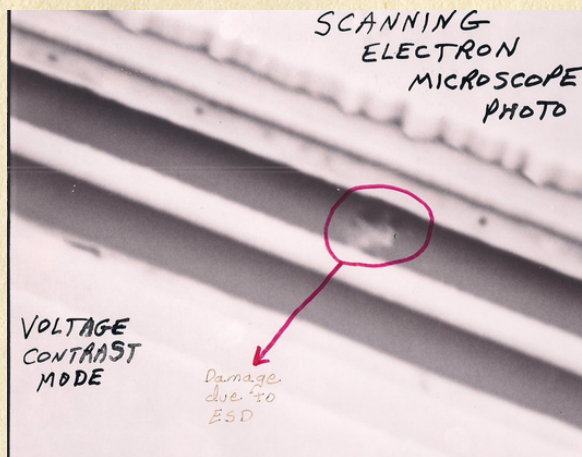
Holmes explained that improper handling of electronic assemblies containing microcircuits, during testing, production, or repair, can still cause catastrophic or

latent damage. A component may appear to function normally after such an event, only to fail later without warning.

"Modern designers," Holmes continued, "have developed protection methods that reduce susceptibility to ESD once a product is fully enclosed. For the end user of a finished device, the danger may seem to have disappeared entirely. But those who build or repair electronic assemblies must still take precautions to avoid damaging components during handling."

Holmes set the magnifying glass aside and clasped his hands together.





—“If you are already familiar with standard ESD handling procedures and use them, you will be safe. The subject has been widely studied, and the Electrostatic Discharge Association provides useful training for those who wish to learn proper techniques. A summary can be found at:”

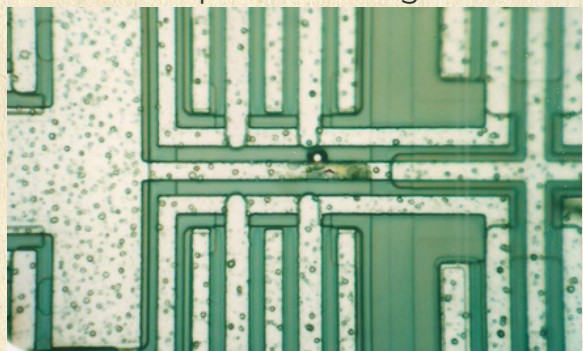
<https://www.esda.org/esd-overview/>”

He then gently tapped the workbench with a finger.

—“The most important fact you must remember is this: static electricity is generated by the contact and separation of different materials. Once that principle is understood, the most common source of problems becomes evident.”

—“The equipment?” I ventured.

—“My dear Watson,” Holmes replied with a slight smile, “the operator. When someone rises from a chair or shifts position at the workbench, thousands of volts can be generated without the person having the



slightest awareness of it.”

A grounded wrist strap provides a safe path for that charge and prevents it from discharging through a delicate circuit. Holmes then gestured toward the open window, through which the humid air from the street was drifting in.

—“Humidity also plays an important role. In regions with moist air—near the ocean, for example—the likelihood of ESD damage is reduced. In dry climates, such as those found in the interior of the United States, susceptibility can be much higher.”

After a moment, he added another observation.

—“It is worth noting that electronic devices are not the only victims of electrostatic discharge. You may have seen warning signs at gas pumps. A person sliding out of a car seat while refueling can accumulate enough charge to ignite fuel vapors. Even filling a metal gasoline container can be dangerous if the container is placed on the insulated bed of a pickup truck. The safe practice is always to place the container directly on the ground before filling it.”

Finally, Holmes handed me several photographs from his failure analysis laboratory. Under magnification, the internal structures of the microcircuits revealed tiny craters and fractured areas—clear evidence of an electrical discharge.

—“There you have it,” said Holmes.

I studied the photographs carefully.

—“A rather dangerous phenomenon, Holmes.”

—“Indeed,” he replied. “Invisible, silent, and produced by nothing more mysterious than an ordinary movement. The curious thing, Watson, is that in most cases the greatest source of electrostatic discharge in the laboratory is also the person best equipped to prevent it.”

— Sherlock

Sherlock: Certified Electrostatic Discharge (ESD) Control Engineer (ESD-00020-NE)

National Association of Radio and Telecommunications Engineers, Inc.

T41-EP

SOFTWARE-DEFINED TRANSCEIVER T41-EP (SDT)



By : Jack Purdum, W8TEE

Antecedents

My friend, Al Peter (AC8GY), and I were heading home after a two-day trip to Field Day in Indiana in 2018. For those who don't know, Field Day is an amateur radio event sponsored by the ARRL, in which operators do not use "commercial sources" to power their equipment. Instead, most use batteries, although some employ solar, wind, gasoline generators, and even hydroelectric generators as power sources. Al was operating a 100 W transceiver (FT-891) connected to a homemade vertical antenna, and I was operating a 20 W Xiegu G90 connected to a

homemade EFHW antenna; both of us were using battery packs. I was using relatively low power to see if I could compete in such a dense contact environment.

With literally thousands of other stations operating on the same band (and sometimes on the same frequency!), we started listing features our equipment lacked and that we wished we had. Al had just bought a Flex 6400 and mentioned that he missed the large spectrum/waterfall display, which would probably have made his hunt-and-pounce approach more effective. I felt the same, as the G90 has a small screen (1.8") and can only display about 25 kHz of spectrum at a time.



The power difference between our two stations seemed to make less of a difference than we had expected. I made some contacts in CW, but I found that no one wanted to talk to someone sending CW at about 18 words per minute during a contest, so I also switched to SSB.

Watching the spectrum display, seeing a strong signal could mean one of two things:

- someone transmitting with 1500 W to a directional antenna 190 feet high, or
- good propagation between the other station and me.

Operator #1 usually had a huge “pile-up”; operator #2, not so much. Focusing on the second type produced good results. I even managed to make contact with France and Portugal using 20 W on SSB.

By the middle of the second day, the duplication of contacts for the high-power operators worked in our favor, and our contacts per hour increased substantially. That is, it seems that competing signals are a more limiting factor for making contacts than the transmission power itself.

The more Al and I shared our Field Day operating experience, the clearer we became about what our ideal equipment would be like.

By the time we reached the entrance to my house, we already had a fairly clear idea of the features our ideal equipment would have and the design goals to make it a reality. The radio had to:

- be a Software-Defined Transceiver (SDT)
- have a spectrum/waterfall display capable of showing up to 190 kHz of bandwidth
- be standalone: no PC, laptop, or tablet required
- support CW and SSB with up to 20 W of power
- support popular HF bands: 80, 40, 20, 15, and 10 meters
- be open-source in both hardware and software
- be affordable for someone with a modest budget

At that time, we thought these features were quite ambitious. However, obviously, a few things were still missing, including the ability to work digital modes. The truth is that at that time it was just Al and me, and neither of us used digital modes much, plus it simplified the electronics.

It was also important for us to keep the cost as low as possible, since we wanted it to be less expensive than the G90 while still having many of its features. The transceiver needed to be robust enough to serve as a main base station for someone just starting out in amateur radio.



Photo by: Reddit

Getting Started

The first thing we did was look for a solid foundation to build upon. There was no point in reinventing the wheel.

Al came across the work of Frank Dziok (DD4WH) and his group, who were working on what they called the Convolution SDR. We believe the original work was done using the STM32F746 microprocessor. This chip had 1 MB of flash memory, 320 KB of SRAM, a floating-point unit, and ran at 216 MHz.

However, when we analyzed it, work had already begun using the Teensy 3.5, which seemed like a step backward due to its lower clock speed and smaller memory resources.

Al and I had been working on a project using the Teensy 4.0 microprocessor, which had 2 MB of flash, 1 MB of RAM, and ran at 600 MHz. We then began porting the Convolution code to the Teensy 4.0.

In 2020, we moved the code to the Teensy 4.1, which is very similar to the 4.0 but has almost 8 MB of flash and a few additional input/output pins. The Teensy 4.1 also supports single- and double-precision floating-point processing using DSP instructions that are part of the standard Teensy 4.1 library. Choosing the Teensy 4.1 processor was an obvious decision.

The Code

At the beginning of development, the Convolution SDR was a single Arduino .ino file with over 18,000 lines of C code. Navigating that code was difficult because we didn't understand the pattern that had been used to organize it. Moreover, the code was written for an SDR, not for an SDT.

We make this distinction because an SDR radio does not necessarily mean it can transmit a signal. (The Convolution SDR did not include signal transmission.)

There was also quite a bit of code that didn't particularly interest us (for example, RTTY and AM), so we removed those parts of the program.

Al took the cleaned-up code, added a few pieces, and had a receiver working in less than three weeks. It didn't have all the features of the Convolution SDR, but it was good enough to serve as a proof of concept.

We then set about splitting that large .ino file into 20 smaller .cpp files and a main .ino file. The smaller files were organized roughly by functional areas. Once this was done, the "diet" reduced the C code to a lean 11,000 lines.

The User Interface

One of the first questions we had to deal with was how users would interact with the transceiver.

By that point, we had named the project T41-EP, where T41 referred to the Teensy 4.1 processor and EP stood for "Experimenters' Platform." From now on, we'll simply call it T41.

Our hope was that other amateur radio operators would see value in what we were doing, experiment with the radio, and help us evolve it over time. This goal was one of the reasons we made the entire project open source, that is, anyone could take the hardware and software and modify it however they wanted.



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We knew we were going to use the RA8875 display because we had already used it in a previous project (JackAI). However, that project relied on direct cursor addressing and it was a disaster.

The JackAI supported 5" and 7" screens, but when trying to use it with a finger, the most common outcome was simply pushing the JackAI case across the table. The JackAI lacked the mass necessary to keep the enclosure in place when trying to activate a menu option.



Figure 1. The early T41 Beta.

None of us are fans of deeply nested menus. We wanted to keep the menu system clean and simple, while still providing easy access to T41's many functions.

The first attempt was a combination of pushbuttons and "shallow" menus. The first version of the T41 looked like the one shown in Figure 1. On the right side of the unit, there was an array of 18 pushbuttons.

The top-left button was the Select button, used to confirm the current entry. The top-center button was Menu+, and the button directly below it was Menu-. Pressing the Menu+ button displayed the next menu item in the list, while Menu- showed the previous menu option. An example can be seen in Figure 2.

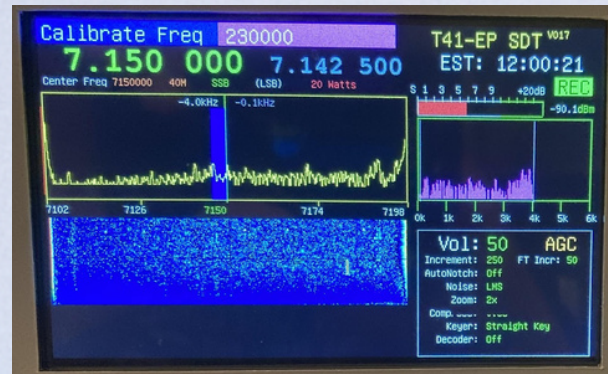


Figure 2. The Primary and Secondary Menu System.

The main menu is displayed in the upper-left line of the screen (for example, "Calibrate Freq"). If that was the menu you wanted to use, you had to press the Select button. Then you could use the Filter/WPM encoder (see Figure 1) to change the number in the secondary menu field (for example, 230000). Once that number reached the desired value, you pressed Select again, and it was entered into the system. The menu options are stored in an (emulated) EEPROM.

Although it still wasn't ideal, it was an improvement in the sense that interacting with menu options no longer meant pushing the unit across the desk. In fact, it's quite easy to place your right hand on the top of the unit and reach all 18 pushbuttons with your thumb. If you're left-handed, you might prefer to place the button array on the other side of the case.

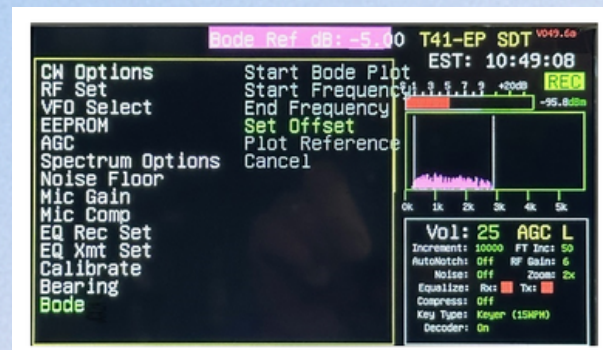


Figure 3. The New T41 menu system.

At the beginning of the development process, I created the Software Controlled Ham Radio (SCHR) website (<https://groups.io/g/SoftwareControlledHamRadio>). There is no membership fee, but members make suggestions and improvements regarding how things work on the T41.

It wasn't long before users started criticizing me for the impractical interface. I then went back to the drawing board and replaced it with the system shown in Figure 3. Now, instead of using Menu+ to scroll through the Main Menu, all Main Menu items are displayed in the left-hand column of the screen.

You can scroll through the Main Menu using the Filter/WPM encoder on the front panel. As you change each Main Menu option, the associated Secondary Menu options (if any) are displayed in the second column on the right-hand side of the screen.

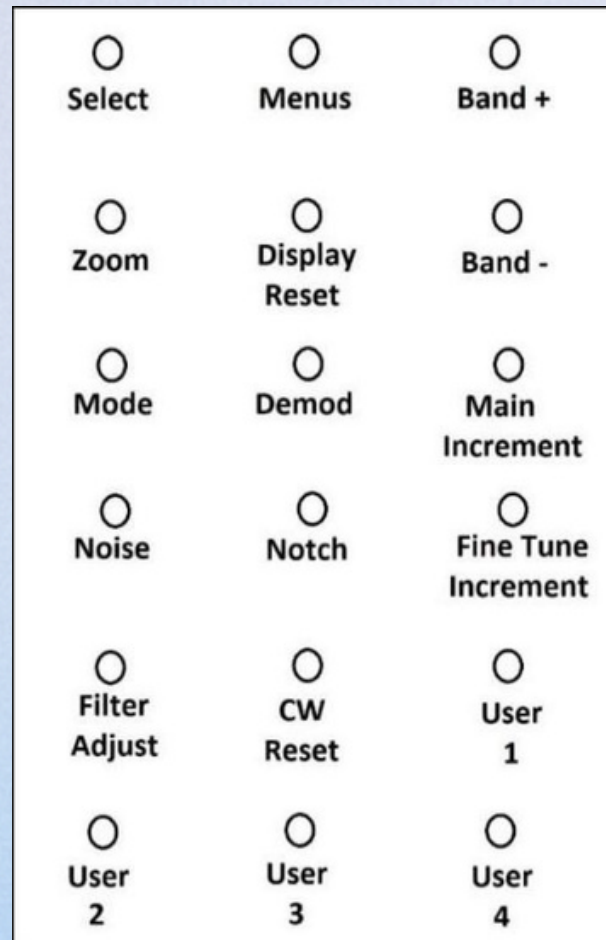
In other words, when you scroll to the Bode option, five sub-options for the Bode plot (plus a Cancel option) appear on the right-hand side of the screen. As you scroll, the active menu option changes to green text. When you find the option you want, press Select and the option is activated.

The advantage is that you can see all Main Menu options at once without having to reveal them by scrolling through the entire menu list. This also allowed us to eliminate the Menu- button.

This menu change probably wouldn't have happened without feedback from the SCHR website. The site is very active, with over 3,200 members. It is a valuable resource for T41 developers.

Because of changes like this in the menu system, the functions of the 18-button matrix also changed.

Figure 4 shows the current switch matrix. This is because the new menu system eliminated...



the need for the old Menu+ and Menu- switches, those buttons could now be assigned to new functions. The Menus switch now activates the new menu system shown in Figure 3.

A brief description of the switches is provided in Table 1.



Table 1. The Button Matrix

Select	Activates the currently highlighted menu option.
Menus	Starts the menu selection process and displays the screen shown in Figure 3.
Band +	Increases the band frequency to the next higher amateur radio band.
Band -	Decreases the band frequency to the next lower amateur radio band.
Zoom	Allows increasing or decreasing the spectrum/waterfall bandwidth. The range is 16 kHz to 192 kHz.
Display reset	Recenters the display on the current fine-tune frequency.
Mode	Switches between CW and SSB.
Demod	Allows overriding automatic USB/LSB selection.
Main Increment	Controls how many Hz the frequency changes each step.
Fine Tune Increment	Controls how many Hz the frequency changes each fine-tune step.
Noise	Selects among three noise filters: 1) Kim, 2) Spectral, 3) LMS.
Notch	Activates the notch filter.
Filter Adjust	Sets the audio filter bandwidth. In Figure 2, this is the center-right
CW Reset	Resets CW parameters to their default values.
User 1	User-defined.
User 2	User-defined.
User 3	User-defined.
User 4	User-defined.
Select	Activates the currently highlighted menu option.

Note that the button matrix is dedicated to those functions you are most likely to want to change during a contact. You would only press the Menu button if you wanted to modify something in the Main Menu, as shown in Figure 3. Items you might want to adjust during a contact (for example, the filter) are part of the button matrix and do not require the “hidden” menu options displayed in Figure 3. Small changes in the software allow you to assign the buttons to perform the functions you want.

User 4 is a bit different, as it features an option not found on other SDTs. Suppose you contact a ham in China and want to rotate your directional antenna to maximize your signal at their location. Interestingly, if you have a guest in the shack and ask them which way the antenna should point toward China, many people instinctively think West (i.e., 270°).

The code allows you to enter the country's prefix and then displays an azimuth map with the correct orientation toward that country. See Figure 5. The ray originates from my home in Indianapolis and projects toward the coordinates of the country's capital city. While it's not completely precise, it's close enough to orient a directional antenna.

In this example, the antenna heading is 344° and the distance is nearly 11,000 km. The software for this feature is completely standalone and, once configured, requires no external information or internet connection. The internal table includes more than 400 countries and the coordinates of their capitals.

Additionally, you can have up to 10 QTH locations, so if you visit a friend in Hawaii, you can set the longitude and latitude of that location and change the screen's origin.

Even if you don't have a rotator, this feature generates considerable interest, especially among younger visitors to the shack. It also answers guests' most common questions: "Where are they? How far away are they?"

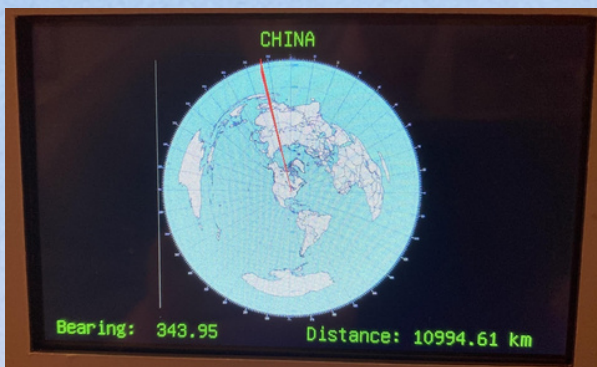


Figure 5. Using the Main Menu option "Bearing" to determine the antenna direction toward China.

The violet-colored graph near the center-right of the screen in Figure 2 is a real-time graph of the signal audio. Currently, the upper cutoff of the filter is set to 4 kHz. This filter bandwidth is also reflected in the width of the "blue bar" in the center of the spectrum display and in the "-4.0 kHz" value shown at the top of the bar.

If you select Filter on the button matrix and then turn the "Filter" encoder, you can adjust the filter bandwidth from 100 Hz to 6000 Hz and hear the impact of the change in real time. The width of the blue bar also changes. The Notch and Noise switches allow you to select the type of filtering.

The CW decoder (called ALP) in the T41 is also completely new and involves the use of DSP, hypergeometric mean, correlation analysis, and a binary search tree to decode text. The decoded text appears below the waterfall.

(You can see an early Beta version of the T41 and the decoder on YouTube: <https://www.youtube.com/watch?v=M2p6om7fn04>).

One of its distinctive features is the ability to "catch up" quickly when a new stream of code begins, usually within one or two seconds. If someone is involved in a long contact, the decoder can even "notice" that the operator is getting tired and automatically adjust its decoding parameters.

Hardware

The T41 is composed of multiple small boards, all interconnected with cables to form the SDT. No board could exceed 100 x 100 mm in size. The reason is that many PCB manufacturers offer promotional pricing for boards of that size; it is not uncommon to find 10 boards for \$5. Although the boards are relatively...

small, the use of SMD components allows a large number of circuits to fit on a single board. To avoid intimidating newcomers with very tiny SMD components, most of the components are 1206, which are relatively large and easy to handle.

Al produced the first set of PCBs for the T41 and had some extra boards that he gave to certain interested people for additional work. The first set of boards is shown in Figure 6. Since the project was going to be Open Source in both hardware and software, Al published the Gerber files of the boards shown in Figure 6, hoping that others would produce more boards so that others could experiment with them.

Additionally, you can have up to 10 QTH locations, so if you visit a friend in Hawaii, you can set the longitude and latitude of that location and change the reference point on the display.

Even if you don't have a rotatable antenna, this feature generates quite a bit of interest, especially among young visitors to the shack. It also answers the most common questions from guests: "Where are they? How far away are they?"



Figure 7. Semi-kit 4SQR T41.

While the 4SQR semi-kits were being produced, other members of the site were working on circuit modifications designed to improve the overall performance of the T41. Among the most notable hardware changes is the work of Dr. Bill Schmidt, K9HZ, and Oliver King, KI3P.

They redesigned the board set and the software and, with careful work, eliminated one of the boards entirely and removed the need for the boost-buck board by changing the power amplifiers (PA) from IRF510s to a more robust Mitsubishi RD16HHF1 RF power transistor for the finals.

(You can connect the T41 to a dummy load, set it to CW, put a brick on the key, go on vacation for two weeks, and it will still be running when you return.)

Greg Raven, Oliver King, and a group of other programmers also made substantial improvements to the T41 software during this time.

The website for this community is: Software Controlled Ham Radio Group

More recently, WiSe Radio (<https://wiseradio.systems/>) is working on a new kit for the T41 and is based on the latest version of the T41. The prototype is shown in Figure 8. Their unit will also have an internal antenna tuner. They also plan to offer a completely built unit as well as the semi-kit. They hope to have more information in time for the Dayton Hamvention.



Figure 8. The WiSe radio kit.

Dr. Schmidt has his own site (<https://groups.io/g/AmateurRadioBuilders>) that also covers the T41 and some of his other projects.

He sells the T41 PCBs at cost, allowing the buyer to obtain all the bare T41 boards for under \$20. He also sells encoder boards...

They use the I2C bus to improve the reliability of both tuning and the button matrix.

In addition, he designed a new 20 W PA board that allows the T41 to operate from 160 m to 6 m. The PA is extremely robust: you can connect the T41 to a dummy load, place a brick on the CW key, go on vacation, and when you return, the T41 will still be transmitting its signal to the dummy load.

There is also a second 100 W PA board, which was nearly ready at the time of writing. Additionally, he is developing an antenna tuner for the T41.

Finally, Al and I have written a book on Digital Signal Processing (DSP) and SDR in general. Although there are dozens of books on DSP, this one is a little different in the way it approaches the subject.

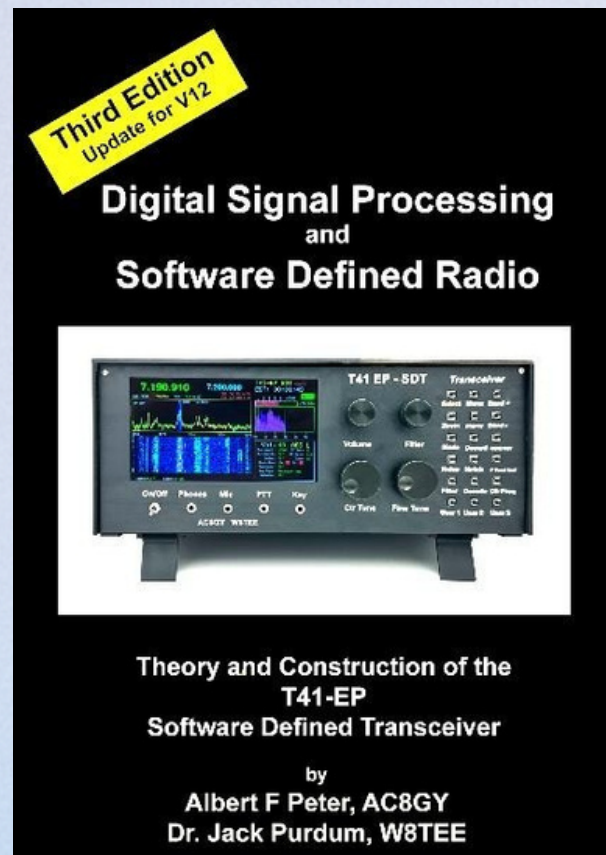
First, we discuss the concept in conversational terms, minimizing mathematics and relegating them to footnotes or an appendix.

Second, the essential elements of DSP are presented in one place, rather than scattered across dozens of other texts and articles.

Then, we explore alternative ways to implement the concept in a circuit. Finally, we explain the circuit we used in the T41 and why. We believe this is the first book that brings all three elements together in one place.

The book also covers features not presented here and offers suggestions and advice for building the T41.

The most recent edition has only a couple dozen reviews, with a 4.8 out of 5.0 rating on Amazon. However, the previous edition had over 150 reviews, 85% of which were 5-star ratings.



The chapters on DSP/SDR are applicable to all radios that use DSP. Read the reviews and decide if this book might be of interest to you.

Performance

Although I cannot provide a quantitative evaluation, the T41 allows you to hear signals as well as an IC-7300 or FT-710. With its voice compression, equalization, and flexible settings, it can serve as a person's only HF radio. At 20 W, you lose less than 2 S-units, and with Dr. Schmidt's 100 W amplifier, it can compete with higher-power radios. If you are an active SWL, the T41 is hard to beat for its price and filtering options. Although you currently have to build it yourself, WiSe Radio will offer pre-assembled and semi-kit versions. It provides excellent performance per dollar and the satisfaction of operating equipment you built yourself. Additionally, SWL and amateur radio clubs and community websites can provide support for new users.

**Under the open sky, the passion for radio
unites curiosity and adventure.**



The Suitcase in the Attic: My Grandmother and the Secret Radios of the Italian Resistance

By: John Leonardelli, VE3IPS

A few years ago, I came across a book review (1) in the New York Times where the protagonists were the Staffette (The Messengers), the female partisans in northern Italy who waged a fierce guerrilla war against the German occupiers during World War II. These women had a strategic advantage and were the lifeblood of the movement: they were “invisible.” Exploiting the sexist assumptions of the time, they moved through checkpoints with contraband hidden in baby carriages or shopping bags, items that German soldiers rarely bothered to inspect. Because they were seldom searched, they carried not only radios but also the “code crystals” (like the FT-243s you use today). Losing a crystal meant a radio was useless, so these women often hid them inside jewelry or sewn into the hems of their skirts. My



Transporting an RC2 Radio to a New Location

grandmother smuggled contraband in cheese and bread, which was a classic tactic of the Brigade Garibaldi. She would even offer a special dried sausage made from offal to suspicious soldiers, who appreciated the small gift while she was busy making a covert delivery.

The Brigade Garibaldi were one of the largest and most influential partisan organizations in Italy during World War II. By 1945, the Garibaldi brigades had tens of thousands of fighters, making them the largest organized partisan force in Italy. They played an important role in the armed resistance against the German occupation forces and the Italian fascist regime after Italy's surrender in 1943.

This historical account triggered a vivid childhood memory. I remembered exploring my grandmother's attic in northern Italy as a boy and discovering a steamer trunk filled with electronic wires and dials. Hidden in a nearby burlap sack were a firearm, a knife, and several tools. When I told my father, he immediately put everything away. At that age, I understood it had something to do with electronics—but also something I had never seen before or fully understood. It certainly didn't resemble the Grundig radio that every European had on their kitchen counter.

During a recent visit to Italy, the truth finally came to light: my grandmother had been part of the partisan movement. And yes, she spent the war moving supplies hidden inside loaves of bread and wheels of cheese. Although I cannot be certain, I suspect that the suitcase I found was an Italian RC2 clandestine radio. My visual memory confirmed that the shape and appearance of the transceiver were very similar, as it was a two-piece unit. While I am sure she was not a trained radio operator, the presence of that suitcase suggests she was involved in something far more significant. During the occupation, the

storing equipment for the resistance. No one knows what happened to the steamer trunk in the attic.



An RC2 at the Camp X Museum in Oshawa, Ontario

Funkabwehr (German radio intelligence) used a ruthless tactic to locate clandestine stations: they would cut power to specific sections of towns. If a signal continued transmitting, they knew the operator was using batteries; if it stopped, they had narrowed the location down to just a few blocks. They would then deploy direction-finding (DF) vans to triangulate the exact house.

The Funkabwehr used specialized “D-F” (Direction Finding) equipment. They would first triangulate any signal from three different directions, obtain a fix, and then send a van to take closer DF readings. They didn't rely only on vans; they also used “human-portable” receivers concealed under coats. A technician would walk down a street with a loop antenna strapped to his chest, literally sensing the strength of the signal.

The Gürtelpeiler was a body-worn portable radio direction finder (RDF). Because of this, partisan operators often limited their transmissions to less than five minutes—anything longer gave the “G-men” (as the British called the German detectors) enough time to narrow the search to a specific area. The Germans had more than 20 local receivers tuned to known frequencies, waiting for activity to begin.

While the British “Paraset” is often celebrated as the ultimate spy radio of World War II, the Italian RC2 was a masterpiece of Resistance engineering that may have set the standard. Developed around 1941 by Magneti Marelli in Milan for the Italian Military Signals Service (OMT), the RC2 and its sister unit, the RF2, became staples of clandestine operations.

Although it bears a striking resemblance to the British Mk VII in both functionality and circuit design, the RC2 was introduced much earlier than its British counterpart, leading historians to suggest that the Paraset may have been based on the Italian design.

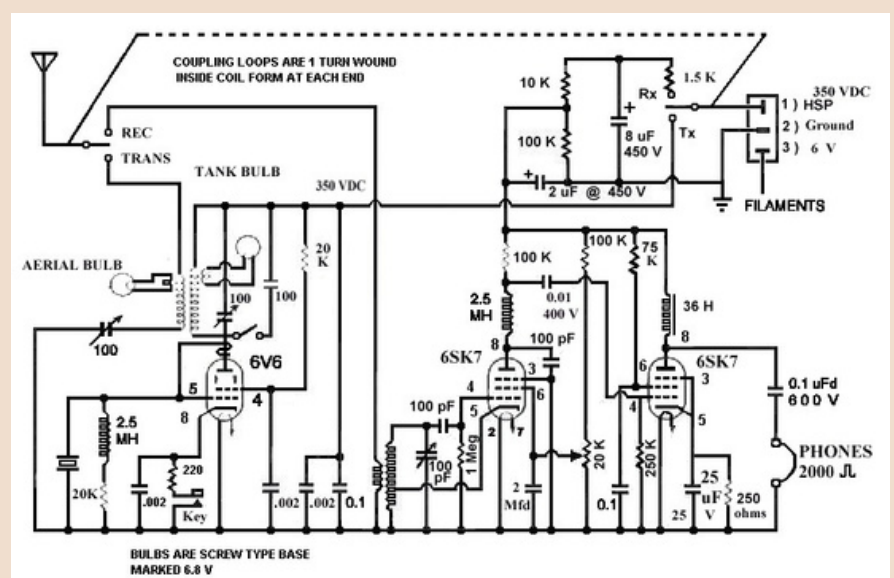
Unlike the factory-built British units, many RC2 transceivers were assembled clandestinely in “secret laboratories” within occupied cities such as Milan, disguised as standard civilian luggage. These units were specifically designed for the realities of the Italian front; they featured a robust power supply capable of handling the notoriously unstable wartime electrical grid.



Three triangulations will determine where to send the vans and radio technicians.

Technically, the RC2 was a simple but effective transceiver, using two 6RV tubes in the receiver and a 6V6 in the transmitter to provide a solid 10 watts of output across the 3.2–7.7 MHz range. The transceiver is housed in a metal enclosure that fits inside a canvas carrying case. The complete unit measures 225 × 215 × 95 mm and weighs 2.4 kg. The external power supply unit (PSU) is housed in a similar canvas case and can supply 350 VDC.

Although the circuit is very similar to the later British Mk VII, it is built with different (Italian) tubes that are mounted internally. It also requires the use of an external Morse key. The British version also uses the 6V6 but employs 6SK7 tubes, as shown below:



Paraset schematic using 3 tubes and a high-voltage power supply

From History to Hardware: The Bayou Jumper

That legacy served as the introduction to my most recent QRP project. When the Four States QRP Group (4SQRG) released the “Bayou Jumper” kit, I knew I had to have one. It’s a brilliant throwback to the Knight Ocean Hopper and a nod to legendary World War II spy radios like the Paraset.

Unfortunately, the kit quickly sold out. I managed to find an unassembled kit at the Dayton Hamvention in Xenia and finally had time to build it during the COVID lockdowns. To capture that authentic “clandestine” feel, I built the unit inside a wooden box.

This 40-meter solid-state radio features a regenerative receiver and a 5-watt crystal-controlled transmitter. Notable features include a classic crystal socket that uses vintage-style FT-243 crystals of which I have dozens to experiment with including frequencies such as 7030 kHz (QRP calling frequency) and the 7122 kHz Novice band crystal.

Like the original Paraset, the Bayou Jumper includes a built-in Morse key, and I further enhanced the build with the “Soup’er Up’er” board, which provides sidetone, fine tuning, and a CW filter.

The Jumper is much easier to hide in a loaf of bread than an RC2 but it’s far more enjoyable to find a spot under a pine tree in the woods, throw up a wire, and send a few “intelligence reports” back to headquarters. Even better, it might be the perfect radio for activating a local bunker in the Bunkers on the Air program.



I worked the world on 40m CW from its secret location.

On the air

Operating the Bayou Jumper is a lesson in patience and perspective. It’s a regenerative receiver design with a separate

transmitter. It works surprisingly well, and being rockbound (fixed frequency) means you call CQ and then tune the receiver for the responses. Using a simple dipole (eliminating the need for a tuner and maximizing efficiency), I have logged contacts in New York, Connecticut, New Hampshire, and North Carolina.

My plan is to decorate the wooden “suitcase” with vintage-style travel stickers representing the states and countries I make contact with. I’m also on the lookout for high-impedance headphones appropriate for the period to complete the aesthetic.

Building this rig was more than just a soldering exercise; it was a way to reconnect with my grandmother’s hidden history. Through QRP, I’ve been able to recreate a piece of the technology used by resistance fighters who risked everything for the cause of freedom.

73s,

John VE3IPS

<https://www.harpercollins.com/products/a-house-in-the-mountains-caroline-moorehead?variant=40827306803234><https://ab1dq.com/2022/09/18/building-the-4sqrp-ozark-patrol-shortwave-regenerative-receiver/>https://www.4sqrp.com/kits/bayou%20jumper/bjManuals/RevA/RevA_Documents.php

SULA

By: Andrew (grayhat)

A receive antenna focused on the signal-to-noise ratio (SNR)

SULA (Small Unidirectional Loop Antenna)

The SULA is a receive-only antenna designed with a specific goal: improving the signal-to-noise ratio (SNR) rather than maximizing gain.

This design is especially useful in high-interference environments, where increasing the gain of a conventional antenna also amplifies unwanted noise.

Design Concept

Unlike many active or long-wire antennas, the SULA:

- Features controlled losses (a “lossy” system)
- Reduces reception of signals outside its main direction
- Improves spatial selectivity of reception

The principle is simple: reducing received noise can be more effective than boosting the signal.

To compensate for the inherent system loss, a low-noise amplifier (LNA) is used.

Key Features

- Receive-only antenna
- Moderate directional pattern
- Good off-axis signal rejection
- Noticeable SNR improvement in HF
- Loop design provides some directionality, helping to attenuate local interference sources

Construction

The SULA is a relatively simple and accessible project.

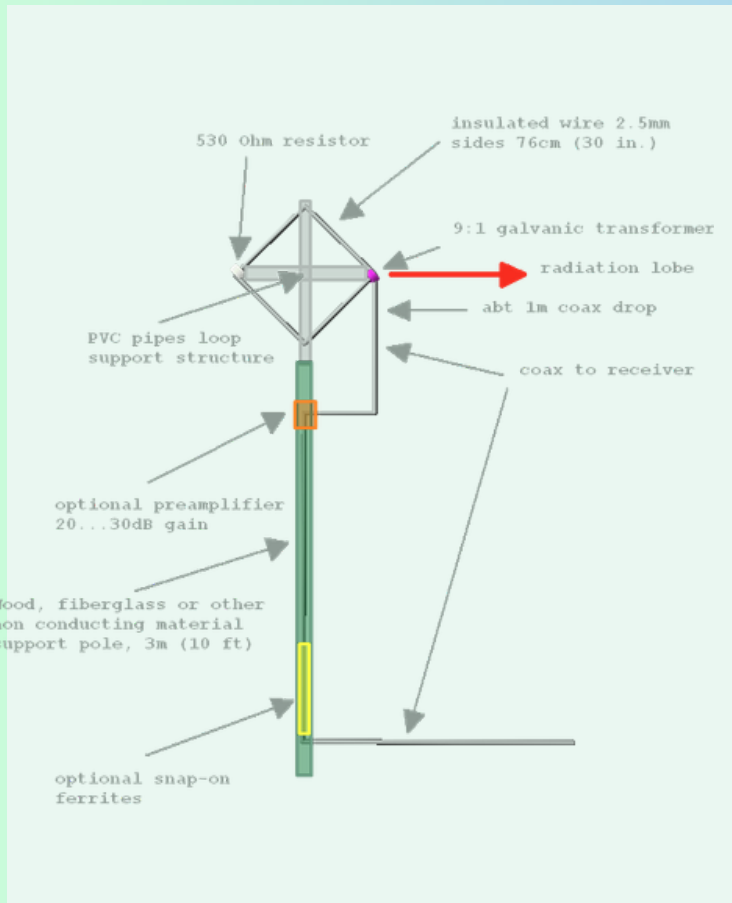
Materials

- Loop or circular frame (approx. 60–100 cm in diameter)
- Coaxial cable (RG-58 or similar)
- LNA amplifier
- Protective enclosure
- RF connectors
- Power system (bias-tee or external supply)



Loop Assembly

The loop assembly involves forming a circular loop using coaxial cable, taking care to maintain the most symmetrical geometry possible and minimizing the length of connections. This symmetry is crucial to preserve the expected reception pattern and ensure optimal antenna performance.



LNA Integration

The LNA is an essential part of the system, as it connects directly to the loop and must have a very low noise figure to avoid degrading the received signal. It also serves to compensate for the inherent losses of the design, so without proper incorporation, the overall antenna performance is significantly limited.

Installation

The antenna can be installed at low or medium height and operates efficiently even in confined spaces. However, its performance depends heavily on orientation, since adjusting the antenna's direction allows you to reduce specific interference and optimize reception of the desired signals.

Expected Performance

Compared to traditional antennas, users report:

- Reduction of background noise
- Improved intelligibility of weak signals
- Greater clarity on HF bands

The main benefit is not signal gain, but improved reception quality.

Final Considerations

The SULA demonstrates that in reception:

- Gain is not always the most important factor
- In noisy environments, an antenna with lower interference pickup can deliver better results than a high-gain antenna

Note

This design is ideal for:

- SWLs in urban areas
- Stations with limited space
- Experimentation with active antennas

Conclusion

The SULA is a clear example of how a different approach can deliver better reception results. Instead of prioritizing gain, this design focuses on controlling the noise environment, achieving a real improvement in signal intelligibility. Its simple construction and performance under challenging conditions make it a practical alternative for stations with limited space or high interference levels.

Ultimately, the SULA confirms that, in many listening situations, optimizing the signal-to-noise ratio is more important than simply increasing the received signal.



ON THE AIR

AMATEUR RADIO CONTESTS THIS MONTH

UKEICC 80 M CONTEST

Dates: April 1, 2026, 20:00 – 21:00 UTC
Modes: SSB
Participants: Worldwide, open to all operators
Exchange: RST report + location/region
Note: Short-duration 80 m contest, ideal for local activity and DX on SSB.

JAPAN INTERNATIONAL DX CONTEST (JIDX)

Dates: April 11–12, 2026, 07:00 – 13:00 UTC
Modes: CW
Participants: Worldwide, with strong participation from Japan
Exchange: RS(T) + callsign/prefix or station data
Note: DX contest with significant Asian and global participation.

EA RTTY CONTEST

Dates: April 4–5, 2026, 12:00 – 12:00 UTC
Modes: Digital (RTTY)
Participants: Worldwide, especially digital mode enthusiasts
Exchange: RSQ + province/region
Note: Classic RTTY event, with fast digital QSOs across multiple bands.

HOLYLAND DX CONTEST

Dates: April 17–18, 2026, 21:00 UTC – 21:00 UTC
Modes: All bands and modes
Participants: Worldwide
Exchange: RS(T) + country
Note: Long-duration DX contest with international participation.

SP DX CONTEST

Dates: April 4–5, 2026, 15:00 – 15:00 UTC
Modes: CW / SSB
Participants: Worldwide, focused on DX and European stations
Exchange: RS(T) + region / serial number
Note: Traditional DX contest with strong international participation.

UK/EI DX CONTEST

Dates: April 25–26, 2026, 12:00 UTC – 12:00 UTC
Modes: CW
Participants: Worldwide
Exchange: RS(T) + region
Note: Traditional contest with strong participation from the United Kingdom and Ireland.

EVERY QSO IS AN OPPORTUNITY TO CONNECT, LEARN, AND PUSH YOUR OWN LIMITS IN THE WORLD OF AMATEUR RADIO.

Club QSO Party in the Club Year

By: Richard Lawn, W2JAZ



The origin of a National Club QSO Party dates back nearly a year, during a board meeting of the South Jersey Radio Association. The board was brainstorming the best way to celebrate the club's 110th anniversary, which will take place in June 2026.

Ten years earlier, then-president Ken Botterbrodt led the organization of a club QSO party to celebrate its centennial. This milestone was no small achievement for any club, but it was especially significant for the SJRA, which has held continuous meetings for more than a hundred years

suggesting it may be the oldest continuously meeting amateur radio club in North America.

The idea of organizing another QSO party to mark the 110th anniversary began to gain momentum as the board listened to Ken's plan to recreate the event from a decade earlier, this time with some new variations. Some of us raised the question: what if we could involve more clubs as sponsors of a QSO party? And, in the spirit of the ARRL 2026 theme, the "Year of the Club," why not promote the idea among all ARRL-affiliated clubs across the United States?

A series of online meetings with the presidents of the Phil-Mont Mobile Radio Club in Pennsylvania and the Kent Amateur Radio Society in Maryland generated even more excitement for the initiative. The goal we settled on was simple: to work as many ham radio club members and registered club stations as possible during a 48-hour period, from 0000 UTC on June 20, 2026, through 2359 UTC on June 21, 2026.

These dates roughly coincide with the founding of the SJRA on June 16, 110 years ago, and will serve as a great warm-up for Field Day, which takes place just one week later.

Contest Operation

Contest activity will be permitted on all amateur radio bands except 60m, 30m, 17m, and 12m. All modes are allowed, including:

- Repeater contacts
- Satellite QSOs
- EME (Earth-Moon-Earth) QSOs

The goal is to get as many clubs across the United States on the air and active as possible!

Club members will transmit their call sign followed by the age of their club, and the exchange must also include the club acronym.

For example, as a member of the South Jersey Radio Association, my exchange would be:

W2JAZ/100 + SJRA

Club stations are encouraged to work both other club stations (which increases their multiplier) as well as members of their own club and other clubs. Club stations do not need to operate from a fixed location. Members may operate using the club call sign from any station, provided they have authorization from the trustee.



For example:

The Kent Amateur Radio Society club station K3ARS/40 could work the SJRA club station K2AA/110.

Participants who are not affiliated with a club will use their call sign followed by their name. Stations outside the United States should include the acronym of their affiliated club, if applicable.

The exchange is designed to:

- Promote club activity
- Highlight and preserve club history
- Build nationwide connections between ham radio clubs

Clubs are encouraged to register in advance, although it is not required. However, they must put their club station on the air for at least 2 hours during the 48-hour operating period.

Log Submission

Keeping a log is required, but only a summary submission is necessary.

The summary submission form is available as a downloadable PDF on the Club QSO Party website.

The log must include:

- QSO date
- QSO time (UTC)
- Call sign / ## of the station worked
- Club acronym exchanged (if provided)
- Operator name
- Frequency or band of operation
- Mode

At present, no logging software includes a dedicated template for this event, but work is underway to develop a Club QSO Party template for N1MM Logger+. It may also be possible to use other popular logging programs.



¿Why Participate in a Club QSO Party?

Participating in a Club QSO Party offers a combination of camaraderie, skill development, and networking, making it a valuable activity for both new and experienced ham radio operators.

Community and Social Aspect

Club-sponsored QSO parties provide an excellent opportunity to connect with other ham radio operators, both on the air and during in-person operating events.

Club Participation

Participation contributes to the club's overall score in the club competition category, fostering teamwork and collective achievement.

Mentorship

Clubs often use these events to welcome and mentor new ham radio operators, providing a supportive environment where they can gain experience in:

- HF operation
- Logging software
- Contesting strategies

Operating Practice

QSO parties are an excellent, low-pressure way to practice operating techniques, become familiar with radio equipment, and test new antennas or station setups in a friendly environment.

Contesting Skills

Because these are shorter-duration events, they have a more relaxed pace than major international contests, making them an ideal entry point for learning competitive operating tactics and strategies.

Technical Knowledge

Setting up portable stations, dealing with changing propagation conditions, and optimizing the station for best performance all help sharpen technical skills.

Event Promotion

The most challenging aspect of this Club QSO Party is getting the word out to other clubs across the United States.

Fortunately, the ARRL provides a database of affiliated clubs, which will receive notifications about this

ambitious program. Hopefully, our enthusiasm will be contagious, and they will help promote the event in their own regions.

A website has been created to provide detailed information on:

- Log submission
- How to register a club
- Scoring system
- Awards for the highest scores in various categories

The website is: clubqso@sjra.org
Rules, regulations, and club registration forms can be easily downloaded from the site.

After reviewing the rules and the FAQ section, any additional questions about the Club QSO Party can be sent to: clubQSO@SJRA.org

Get on the air and join us from June 20–21, 2026, to celebrate your club's history and connect with many ARRL-affiliated clubs across the country!



Get “Radio Active” and join us from June 20–21, 2026, to celebrate your club's history and connect with many ARRL-affiliated clubs across the country!

About the Author

Richard Lawn, W2JAZ, will celebrate 61 years in ham radio in 2026. During this time, he has built numerous kits and designed a variety of devices and antennas. He has explored nearly every aspect of the hobby, including EME and satellite operation.

Rick has written reviews and articles for QST Magazine and CQ Amateur Radio Magazine, and he currently serves as president of the South Jersey Radio Association.

His vanity call sign reflects his career as a performer, composer, author, educator, and administrator. Before retiring, he published nearly 75 musical compositions, five books, and six recordings.

He holds undergraduate and graduate degrees from the Eastman School of Music and has performed with notable artists such as:

- Chuck Mangione
- Lionel Hampton
- Ray Charles
- Natalie Cole
- Nancy Wilson
- Aretha Franklin

...as well as with the Rochester Philharmonic Orchestra and numerous other renowned artists and ensembles.



The Nostalgia Nook

The Little 2 Meter Giant That Opened the Door to Our First QSOs

In the world of ham radio, certain equipment transcends its technical function and becomes a symbol of eras, memories, and shared experiences. One such piece of gear is undoubtedly the ICOM IC-2AT, a 2meter handheld that left a lasting mark on an entire generation of ham radio operators. Introduced in the 1980s, the IC-2AT offered simplicity, reliability, and portability. Its compact and rugged design made it the perfect companion for those first QSOs, outdoor activations and local repeater hunts. Many operators remember the thrill of tuning into their favorite frequency and hearing a friend's clear signal from miles away—all from a small handheld transceiver that fit in the palm of their hand.

The IC-2AT stood out for its ease of use. Its intuitive dial, clear audio, and ability to run on rechargeable batteries allowed beginners to focus on learning to transmit and receive, without worrying too much about technical complications. For many, it was the first piece of equipment they truly felt was “their own,” the one with which they began experimenting with portable antennas, simplex contacts, and local repeater operation.

Beyond its portability, the IC-2AT connected generations. Many ham radio operators recall sharing antenna secrets, power settings, and repeater codes with friends or family—transmitting not just signals, but knowledge and passion. Every QSO was a lesson, every contact an achievement, and every voice heard through the IC-2AT reinforced a love for ham radio, leaving an indelible mark on those fortunate enough to use it.

Over the years, this small transceiver became a symbol of early VHF adventures. Park activations, field trips, local contests, and school club gatherings all found in the IC-2AT an inseparable companion. Its ruggedness allowed it to survive drops and travel, and its long-lasting battery ensured that no QSO went unfinished.

Today, the IC-2AT remains a reminder of the early days, of the thrill of every contact, and of the power of ham radio to bring people together. Powering it on is like opening a portal to the past, hearing echoes of voices that accompanied us through our first steps on the air, and reminding us that the true magic of ham radio lies in the connections we make. For many, it is more than just a transceiver: it is a keeper of memories, laughter, and friendships forged in the ether.



By: SWR Editorial Team



The Nostalgia Nook



UNDERSTANDING DIGITAL VOICE IN HAM RADIO

By: SWR Editorial Team

Audio Level Differences in DMR

This article kicks off a two-part technical series from SWR that explores how modern digital voice systems work in ham radio. Modes like DMR, D-STAR, System Fusion, and NXDN have become common on repeaters and networks around the world, but many operators still wonder why digital audio behaves differently from traditional analog FM.

A frequent observation in DMR talk groups is that some stations sound much louder than others. Two operators might be using the same repeater and the same digital mode, yet one may come through perfectly balanced while the other sounds extremely hot or over-modulated.

This can be confusing, since DMR is a digital standard. However, while the protocol defines how voice is encoded and transmitted, it does not specify exactly how each manufacturer should design the radio's internal audio processing chain. Inside a typical digital transceiver, the voice passes through several stages before transmission. The microphone converts sound into an electrical signal. That signal then goes through a preamplifier, where the initial level is set. Next, it enters the digital signal processor (DSP), where filtering, compression, and gain control may be applied. Each manufacturer can configure these processes differently. Higher-end commercial radios usually carefully calibrate these parameters to maintain consistent audio levels across units. In contrast, some lower-cost radios may use more aggressive gain settings, making the audio sound louder. Finally, the signal reaches the vocoder, which converts the voice into compressed digital data for radio transmission. It's important to understand that the vocoder does not automatically normalize audio levels; it simply encodes the signal it receives. Understanding these stages helps explain why different radios can sound different even when using the same digital system.

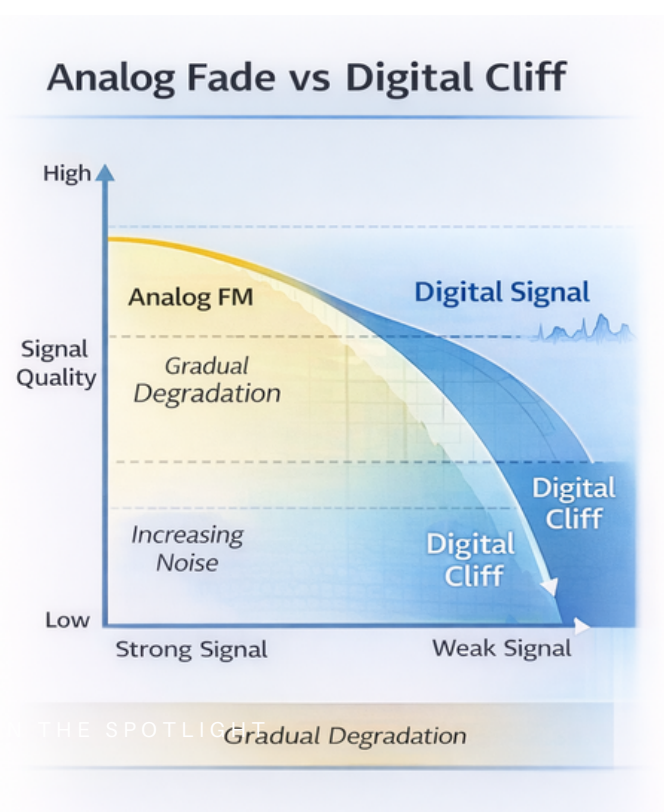
Why Digital Signals Drop Suddenly (Digital Cliff)

One of the most striking features of digital communication is how abruptly a signal can disappear when it weakens. Operators used to analog FM often expect the audio to gradually get noisier as the signal fades.

In analog systems, the receiver continuously demodulates the waveform of the signal. As the signal weakens, background noise gradually increases. Even with quite a bit of noise, it is often still possible to partially understand the conversation. Digital systems work differently. Instead of directly reproducing the audio waveform, the receiver tries to reconstruct the digital data representing the voice. To do this, it uses error correction algorithms and decoding techniques designed to recover as much information as possible. As long as the received signal stays above a certain decoding threshold, the receiver can reconstruct the voice signal with remarkable clarity. For this reason, digital audio often sounds "perfect" even when the signal is not particularly strong. However, when the signal drops below that critical threshold, the receiver can no longer correctly recover the transmitted data. At that point, the audio begins to sound robotic, choppy, or distorted. If the signal continues to weaken, the receiver completely loses the ability to reconstruct the voice, and the audio disappears suddenly. This phenomenon is commonly known as the digital cliff. The name comes from the way signal quality appears to drop abruptly rather than degrade gradually, as happens in analog systems.

While this behavior can be surprising at first, it also has an important advantage: when the signal is above the decoding threshold, digital audio can provide exceptional clarity with very little background noise.

Next article: How vocoders recreate the human voice.



VarAC and SUPERSTATION: Beyond Digital Contacts

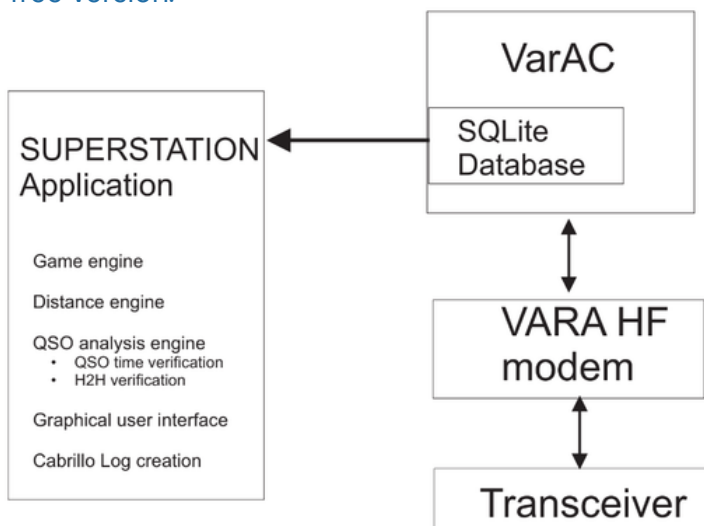
By: Mark KBOUS y Jason K3JSJ

What if there were a contest where you earned points for making a long-format digital QSO? What if you had to exchange more than just a signal report and location? What if it also included a multiplier based on the distance covered? Could we create something with video game elements to attract those who spend hours playing online? And, moreover, could we structure the contest to run over extended periods, removing the pressure of very short QSOs?

Perhaps, just perhaps, we could invent something that goes beyond FT8 “contacts,” fostering real human interaction and friendships.

We began thinking about these questions in the summer of 2025. Although both of us were FT8 users, we were looking for something deeper in our interactions. The result was the SUPERSTATION application.

The key enabler was an emerging digital mode called VarAC, which allows error-free keyboard-to-keyboard communications. Based on the VARA HF modem, prolonged QSOs can be achieved even with -20 dB SNR. Both VarAC and VARA HF are free, although VARA HF can be upgraded for higher performance for \$75. Most new users start with the free version.



VarAC is a very full-featured platform, with the ability to send messages, email over the Internet, emergency traffic, images, and even includes artificial intelligence (AI) integration. It also has a beacon function similar to JS8Call and a broadcast capability so that everyone within range can receive a transmitted message. This last feature was important in the development of the contest.



Scoring System

The contest combines video game elements with a card-and-dice game. The operator earns points by multiplying three separate scores during the contest period:

- The card-and-dice game score
- The number of H2H QSOs (Human-to-Human) lasting more than 10 minutes
- The longest distance achieved

Architecture

The critical capability of VarAC was reading the full contact database, which is stored in SQLite. The database's free APIs allowed us to access all QSO information, including grid square for distance calculation, QSO duration, and most importantly analyzing the QSO text to verify that it was truly H2H.

Game Engine

To roll the dice, the operator sends a VarAC broadcast including the text <ROLL>, which reveals a station component card (antenna, radio, computer, or amplifier) in the SUPERSTATION graphical interface.

The <ROLL> broadcast was important for two reasons: it enabled the game to be played and encouraged the operator to spend multiple sessions in the shack during the contest, acting like a contest CQ that drove QSO activity.

Each component card has four levels, so the maximum game value is $4 \times 4 \times 4 \times 4 = 256$, representing the SUPERSTATION. Everyone starts with their cards at zero, and only after achieving at least a Level 1 on each card do the game score and total score begin counting. There is no penalty for rolling a lower value.

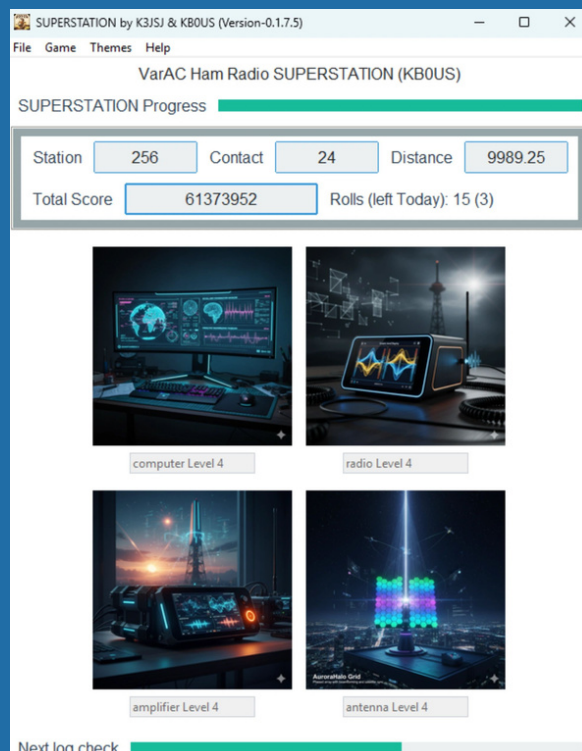
AI was used to model the probabilities of achieving non-zero scores and reaching the maximum of 256. The probability of getting a non-zero score is reached in 9 rolls, while reaching the maximum takes 36 rolls. A limit of three rolls per day was established, estimating roughly three days to start scoring and up to 12 days to reach 256.

Distance Engine

Calculating the distance of a QSO proved more challenging than expected. VarAC allows entering your own grid square but does not guarantee that the contacted station provides theirs.

Fortunately, VarAC allows querying another station's grid using <LOCR> (location request), which enables distance calculation for the QSO. This avoids the need for explaining a contest exchange and does not require the contacted station to participate in the contest.

Checks were added to ensure the distance did not exceed the possible maximum on Earth. If the distance could not be calculated, the QSO still counted as long as it was H2H and lasted more than 10 minutes.



QSO Analysis Engine

Inspired by the Turing Test, a QSO was considered H2H if each participant wrote at least four original lines, with no content automatically generated by VarAC. The minimum duration for a valid QSO was 10 minutes, though VarAC-generated content could be included within that period.

Graphical Interface

The graphical interface displays:

- Card game values
- "Next Log Check" indicator (reading verification of the SQLite database)
- Total station score and progress bar (max. 256)
- Number of contacts
- Longest distance achieved in kilometers during the contest
-

The total score is calculated as: Station $\times$ Contact $\times$ Distance. For example: $256 \times 24 \times 9,989.25 = 61,373,952$.

X-QSO:	FREQ	DATE	TIME	MYCALL	MYSIG	MYGRID	CALL	SIG	GRID	DURATION	DISTANCE	TYPE
X-QSO:	14000	2026-01-14	1838	KBOUS	59	DN22SN	KX2DX	59	FN00XS	00:13:19	2984.36	H2H
X-QSO:	14000	2026-01-14	2145	KBOUS	59	DN22SN	AA0ST	59	EM37DV	00:26:50	1818.42	H2H
X-QSO:	14000	2026-01-14	2333	KBOUS	59	DN22SN	KJ7BS	59	DM33VO	00:15:19	1015.03	H2H
X-QSO:	14000	2026-01-17	0108	KBOUS	59	DN22SN	NE5TA	59	EM12LP	00:20:26	1874.80	H2H
X-QSO:	14000	2026-01-17	2000	KBOUS	59	DN22SN	N7QJF	59	EM27LJ	00:24:21	1601.19	H2H
X-QSO:	14000	2026-01-18	1950	KBOUS	59	DN22SN	KQ6K	59	DM04NG	00:25:57	997.65	H2H
X-QSO:	14000	2026-01-18	2320	KBOUS	59	DN22SN	ND9DU	59	DM03UT	00:13:05	1027.96	H2H
X-QSO:	14000	2026-01-19	2155	KBOUS	59	DN22SN	K16NDY	59	EM86SI	00:14:38	2794.98	H2H
X-QSO:	14000	2026-01-20	1901	KBOUS	59	DN22SN	KR4GOW	59	EM74UD	00:12:06	2756.89	H2M
X-QSO:	14000	2026-01-21	0028	KBOUS	59	DN22SN	K6IXY	59	DM04OG	00:15:10	994.92	H2H
X-QSO:	14000	2026-01-22	1744	KBOUS	59	DN22SN	AA5IT	59	EM20VD	00:32:15	2259.65	H2H
X-QSO:	14000	2026-01-22	2244	KBOUS	59	DN22SN	NJ6O	59	DM16VH	00:12:53	710.76	H2H
X-QSO:	14000	2026-01-22	2313	KBOUS	59	DN22SN	K7QB	59	EM69VG	00:25:45	2372.43	H2H
X-QSO:	14000	2026-01-23	0057	KBOUS	59	DN22SN	KB3CXQ	59	FM09FG	00:14:11	2913.25	H2H
X-QSO:	14000	2026-01-23	2207	KBOUS	59	DN22SN	AA7DS	59	CN87VC	00:22:39	788.01	H2H

Cabrillo Log Generation

At the end of the SUPERSTATION contest, participants generate a Cabrillo log for submission, including H2H verification, callsign, QSO duration, and distance (km).

First SUPERSTATION Contest

Two beta tests were conducted: one with a selected group and another open to anyone who wanted to provide feedback. Both contributed significant improvements.

The first official contest took place January 14–28, 2026, with QRP Labs as the official sponsor.

Winner: K7QB, Bob Perry – 146,740,273 points

- 19 operators submitted Cabrillo logs
- 394 QSOs were completed
- Average QSO duration: 22 minutes
- 156 hours of VarAC activity were recorded

Support Materials

Social media (Facebook, Telegram, YouTube) and user guides in English, Dutch, German, and Spanish were used. An application note titled “Yes, and... Using an Improv Technique for Better QSOs” was included to help maintain long, natural conversations.

The Future

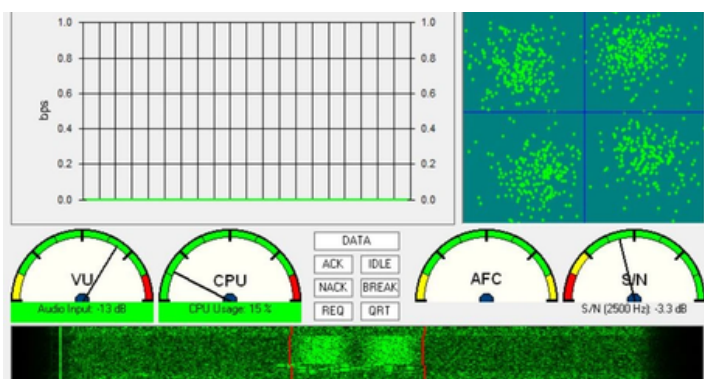
The plan is to hold SUPERSTATION games once a month. The biggest challenge remains promoting the mode. While some operators do not prefer long QSOs, a significant increase in the use of VarAC and SUPERSTATION is expected, helping hams connect with new friends or strengthen existing relationships.

More Information

- “Welcome to VarAC and SUPERSTATION”: <https://www.varacwednesday.net/training>
- SUPERSTATION App: <https://www.varacwednesday.net/applications/SUPERSTATION>
- Current Game Info: <https://www.varacwednesday.net/SUPERSTATION>

Authors

- Mark Rosneck, KBOUS – Licensed in 1967 as WN8YNQ, with a background in electrical engineering and semiconductor marketing. Email: emblongmont@gmail.com
- Jason Johnson, K3JSJ – Architect and developer of SUPERSTATION, interested in digital modes (Packet, VarAC, FT8, FLDIGI), DMR, and emergency communications. Email: K3JSJ@arrl.net



Field Day in India

Antenna Experiments with the Pune Hams Amateur Radio Club



By: Sumita Sahi VU2IO

Members of the Pune Hams Amateur Radio Club (PHARC) held a multiband Field Day on March 1, 2026, in the historic temple city of Jejuri, near Pune in the state of Maharashtra, India.

The activity focused on hands-on learning, antenna experimentation, and real-world ham radio operating experience. The rural setting, approximately 60 kilometers from Pune, provided an ideal environment for portable and mobile operations.

A total of fifteen participants, including licensed hams and shortwave listeners (SWLs), attended the event. Three operating stations were set up, each experimenting with different antenna configurations to evaluate their performance under the same propagation conditions.

Among the antennas tested were:

- Multiband V dipole
- Shortened vertical antenna
- Wolf River Coil vertical antenna
- Multiband resonant vertical antenna
- Standard dipole
- Magnetic loop antenna
- 5/8-wave vertical antenna





Operating from the same location allowed the team to compare signal strength, noise levels, and overall antenna performance.

Propagation conditions during the event were favorable, particularly on the 20- and 40-meter bands, allowing several successful QSOs throughout the day.

Some stations operated from portable tables, while others experimented with mobile stations installed directly in vehicles.

Beyond making contacts, the main goal of the activity was technical learning. Participants discussed antenna behavior, tuning methods, and station configurations while observing the results of their experiments.

A highlight of the day was a special QSO with Bharathi VU2RBI, who addressed the club members and encouraged greater participation in ham radio, particularly among new operators and YLs.

The Field Day concluded with a technical discussion, during which participants shared observations and lessons learned from the antenna experiments.



SCHEDULED EVENTS AND ACTIVITIES - APRIL 2026

Conventions, Hamfests, and In-Person Events

**SPECIAL
EVENTS**

- 2026 Santa Maria DXers & Contesters Convention – April 10–12, 2026, in Santa Maria, California, USA. A major gathering for DXers and contesters.
- Green Country Hamfest – April 10–11, 2026, Claremore, Oklahoma, USA. Hamfest featuring vendors, raffles, forums, and a swap meet.
- Yeovil QRP Convention – April 11, 2026, Sherborne, Dorset, UK. UK ham radio convention focused on QRP, with exhibitors, bring-and-buy, and technical talks.
- Durham Hamfest – April 18, 2026, Pickering, Ontario, Canada. Annual hamfest with equipment market, presentations, and activities hosted by the North Shore ARC.
- Spring Hamfest – April 25, 2026, Winston-Salem, North Carolina, USA. Fair with equipment sales and events organized by the local ham radio club.

On-the-Air / Special Operations

- Shark's Tooth Festival Special Event Station – April 11–12, 2026. Call sign: K4S
- FL State POTA Contest – April 17–20, 2026
- Florida State QSO Party – April 25–26, 2026
- World Amateur Radio Day – April 18, 2026 (Worldwide)
- Special event: “Get on the Air on World Amateur Radio Day”, with official RAC stations active across Canada all day to celebrate ham radio and the IARU.
- Special Callsigns PI26WT / PAXxWT – April 7–21, 2026, Netherlands
- Special station for the “DRG’s Watertower Event”, featuring multiple call signs and an award system based on log achievements.

By: Yanira Maldonado, WP4QOE

Female Frequency

Ego-Free Technique:

Learning Ham Radio Without Intimidation

One of the most fascinating aspects of ham radio is its technical dimension. Antennas, propagation, digital modes, equipment building, and fine-tuning are all part of an exciting world that never stops teaching us something new.

However, for many people, especially women entering the hobby, diving into the technical side of ham radio can feel intimidating.

Not because the technical aspects are inaccessible, but sometimes the way knowledge is shared can create unnecessary barriers.

Along the way, it's common to encounter conversations filled with complex terminology, highly technical discussions, or explanations that seem more focused on showing off expertise than sharing it. When that happens, some may choose to stay silent rather than ask a question that might seem too basic.

But the reality is very different: no one knows it all in ham radio.

Every operator, no matter how many years they've been on the air, is still learning. Technology changes, modes evolve, equipment transforms, and there's always something new to explore.

Technical knowledge shouldn't be an exclusive territory or a competition of expertise. It should be, as it has always been at its core, a space for collective experimentation.

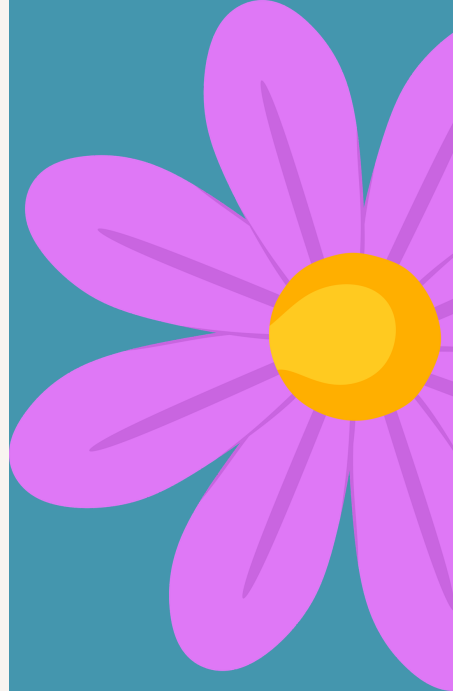


Photo by: R1big



Asking isn't weakness.

Asking is curiosity.

For Israel Cabrera (KP4AX)

And curiosity is precisely the engine of ham radio.

Many times, all that's needed is an environment where learning is welcomed a place where someone takes a few minutes to explain how an antenna works, what a SWR adjustment means, or how to start experimenting with a new digital mode.

Fortunately, within our community, there are many hams who understand this perfectly. They are the ones who share their experience with humility, teach with patience, and celebrate when another operator grasps something new. These are the true mentors of the hobby.

Ham radio thrives when knowledge flows freely, when questions are met with respect, and when new operators—men and women alike, feel they can learn without fear of judgment. For those just starting out, or for anyone who still feels hesitant approaching technical topics, the message is simple: don't be intimidated.

Technical knowledge doesn't belong to a select group.

It belongs to everyone curious about how a signal travels through the air. Reading, experimenting, asking questions, trying, and trying again are all part of the natural learning process. Every antenna installed, every adjustment mastered, and every QSO completed is also a lesson. Ham radio isn't about proving who knows more, it's about discovering together what we still have to learn.

Because when we leave ego outside the shack, radio becomes what it was always meant to be: an open laboratory for everyone.

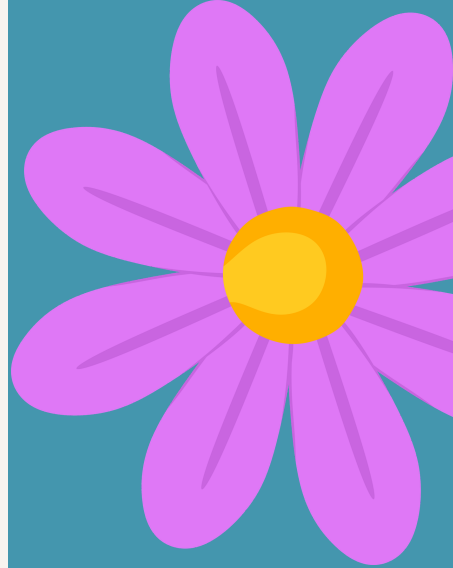


Photo by: EA3HZX



**Where others see mere structures, they
see endless possibilities on the airwaves.**



IS THE YAESU FT-817 STILL RELEVANT IN 2026?

Pure QRP: Less Power, More Skill



Small in Size, Big on Possibilities

By: SWR Editorial Team



The Yaesu FT-817 proves that high power isn't necessary to make great contacts, combining portability, versatility, and an adventurous spirit in every operation.



The Yaesu FT-817 is, without a doubt, one of the most iconic radios in the history of portable ham radio. Launched in the early 2000s, this compact “all-mode, all-band” transceiver revolutionized the way hams operate in the field, especially in activities like SOTA, POTA, and expeditions.

But now, in 2026... is it still relevant?

Build Quality

The FT-817 is known for its compact and rugged design. Despite its small size, it's a solid piece of equipment that has proven durable under demanding conditions. Many operators still use units with over 15 years of service without major issues.

On-Air Performance

With an output power of up to 5 W (QRP), it doesn't compete in sheer power with modern radios, but it delivers surprisingly strong performance when paired with good antennas and favorable conditions. Its receiver remains competent, though contemporary equipment offers better filtering and lower noise.

Features and Functions

It covers HF, VHF, and UHF across all modes (SSB, CW, AM, FM), which remains impressive even today. However, it lacks modern features like a touchscreen, waterfall display, or advanced DSP.



Classic
performance,
modern passion.



- Bands: HF / VHF / UHF (160m–70cm)
- Modes: SSB, CW, AM, FM, Digital
- Power: Up to 5W (QRP)
- Power Supply: Internal battery / 13.8V DC
- Portability: Ultra-light (~1.2 kg)
- Coverage: All-band, all-mode
- Connectivity: Compatible with digital interfaces
- Display: Monochrome LCD

Compatibility

Despite its age, the FT-817 integrates very well with computers and digital modes (FT8, JS8Call, etc.) via external interfaces. Its popularity has fostered a broad ecosystem of accessories.

Cost-Benefit Ratio

On the second-hand market, it remains highly valued. While there are more modern alternatives like the Yaesu FT-818 or SDR-based rigs, the FT-817 is still an attractive option for those seeking portability and versatility.

Nostalgic Value

This radio holds an almost legendary status. For many hams, it was their gateway into the world of QRP and portable operations.

Conclusion:

The Yaesu FT-817 is:

- Useful with limitations – It remains fully functional and relevant in specific contexts such as portable and QRP operation, even though more modern equipment has surpassed it technologically. Its legacy and versatility, however, keep it as a classic that still has a lot to offer.

Global Connections

Exploring Amateur Radio Beyond Borders

ARARM – Asociación de Radio Aficionados de la República Mexicana

Country: Mexico

Summary: Promotes amateur radio throughout Mexico, offering training, contests, and activities that connect operators and enthusiasts.

Website / Contact: www.ararm.org

Inspirational Quote: “Amateur radio unites voices and experiences beyond borders.”



Radio Club Argentino – LU4AA

Country: Argentina

Summary: Argentina’s oldest amateur radio institution, founded in 1921. As a founding National Society member of the IARU, it promotes education, advocacy, contests, courses, and activities that connect hams both domestically and internationally.

Website / Contact: <https://www.lu4aa.org/wp/>

Inspirational Quote: “A bridge of communication between operators around the world.”



Radio Club de Chile – CE3AA

Country: Chile

Summary: A historic amateur radio organization in Chile, founded in 1922 and known as “La Casa de Todos.” It promotes operator training, technical activities, contests, and services such as bulletins, courses, and emergency networks to connect the Chilean and international ham community.

Website / Contact: <https://www.ce3aa.cl/>

Inspirational Quote: “A bridge of communication that unites hams beyond borders.”



Radio Club Argentino – LU4AA

Country: Argentina

Summary: The leading institution of amateur radio in Argentina, founded in 1921. As a founding National Society member of the IARU, it promotes education, advocacy, contests, training courses, and activities that connect ham radio operators within and beyond the country.

Web / Contact: <https://www.lu4aa.org/>

Inspiring Quote: “A bridge of communication between operators around the world.”



Video webcast can be seen every other Wednesday night at 8:00 PM on W5KUB.COM

Join our facebook group of over 15,000 hams at "W5KUB"

Youtube, x.com, facebook, twitch.tv

Ham-TV – The Global Amateur Radio Show

Web: <https://ham-tv.com/>

Summary: Ham-TV is a weekly program dedicated to the world of amateur radio and amateur television (ATV), viewed in more than 150 countries. Hosted by a team of enthusiasts, including Tom W5KUB, Katie WY7YL, and other co-hosts, the show covers technical topics, events, stories, and the global culture of the amateur radio hobby.

Extras: In addition to its main broadcast, Ham-TV is also available as a podcast and across digital platforms, including shortwave transmissions via the international station WBCQ on 7490 kHz, making it a gathering point for ham radio operators around the world.

Newly Licensed: Now What?

The First Steps of a New Ham Operator

By: NOXO (Alan Wilson)

Obtaining a Technician license in amateur radio is a significant milestone, but it's also the starting line. Once your callsign appears in the FCC database, you're authorized to transmit, experiment, and participate in one of the most diverse technical hobbies in the world. The challenge many new licensees face isn't what they're allowed to do, but what to do first.

This article outlines practical steps to help newcomers get on the air, develop skills, and find their place in amateur radio.

My First Week on the Air

During my first week as a newly licensed novice, I spent most of my time listening to the local repeater. I wanted to understand how QSOs flowed, how callsigns were exchanged, and how nets were conducted before transmitting.

That time proved invaluable. When I finally keyed the microphone, the process felt familiar rather than intimidating. Listening first helped me avoid common mistakes and build confidence. For new Technicians, spending time monitoring repeaters before transmitting isn't hesitation, it's good operating practice.

Get on the Air Early

The most important advice for new licensees is simple: operate early and often. Reading manuals and watching videos is helpful, but nothing replaces time on the air.

Most Technicians start on the VHF and UHF bands, particularly:

- 2 meters (144–148 MHz)
- 70 centimeters (420–450 MHz)

A basic handheld transceiver or mobile radio is sufficient to make contacts via local repeaters or simplex. Once licensed, there's no need to wait, operation is allowed immediately.

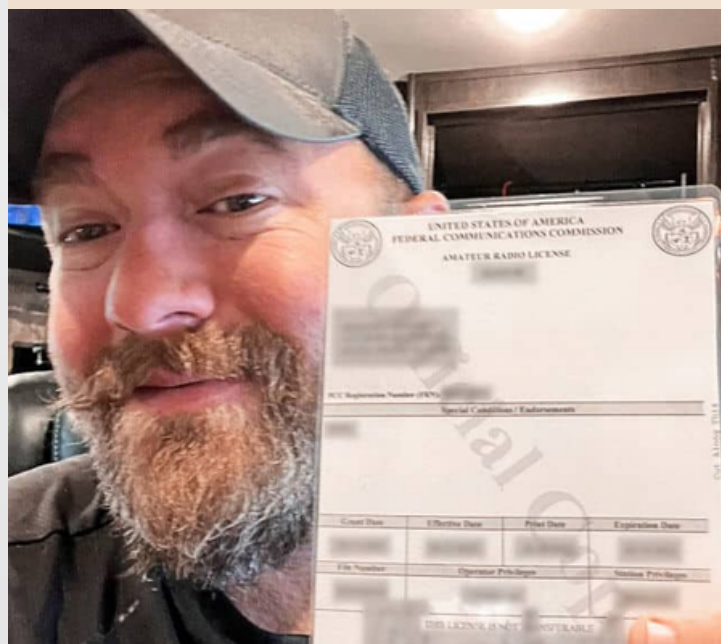


Photo by: hamradioprep.com

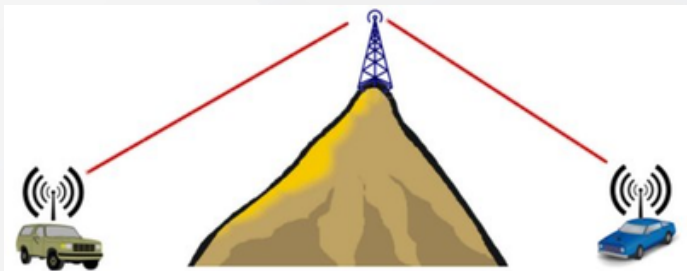
Understanding Repeaters

Repeaters are often the first gateway to regular on-air activity. They allow low-power stations to communicate over greater distances by retransmitting signals from elevated locations.

New operators should become familiar with:

- Frequency offsets
- CTCSS/PL tones
- Repeater identification and operating etiquette

Listening before transmitting, identifying yourself with your callsign, and keeping transmissions concise will help make a good first impression on local repeaters.



Join a Local Amateur Radio Club

While amateur radio can be enjoyed independently, local clubs provide invaluable support. Clubs offer:

- Mentorship from experienced operators
- Access to nets, repeaters, and training
- Opportunities for public service and emergency communications

Many skills, such as antenna setup, digital modes, and HF operation, are learned more effectively through hands-on guidance.



Photo by: news.mst.edu

Technician Privileges: More Than You Think

The Technician license grants access to more operating modes than many newcomers realize:

Voice:

- FM on VHF and UHF
- Limited HF phone privileges on 10 meters

Digital:

- Packet radio
- APRS
- FT8 and FT4 on HF
- Digital voice modes such as D-STAR, DMR, and System Fusion (depending on equipment)

Satellites:

- FM and linear amateur satellites
- Worldwide contacts using portable radios and simple directional antennas

Public Service:

- Participation in ARES®, RACES®, and community events
- Weather observation and support in emergency communications

Each area represents a different style of operation, and many newcomers explore several before finding their favorite.

Equipment: Upgrade with Caution

It's tempting to upgrade your gear quickly, but experienced hams often recommend a slower approach.

Before purchasing new radios:

- Improve your antenna system first, as it has the greatest impact on performance
- Learn all the capabilities of your current equipment
- Spend time listening as well as transmitting

In many cases, a modest radio with a well-designed antenna outperforms expensive equipment with suboptimal setups.



Photo by: nyc-arecs.org

Looking Ahead: The General-Class License

For many Technicians, the next step is upgrading to General Class. The expanded HF privileges allow:

- Worldwide communication
- Access to more diverse activities, such as DXing, contests, and working with weak signals

Studying for General after gaining operational experience often makes the material more intuitive and rewarding.

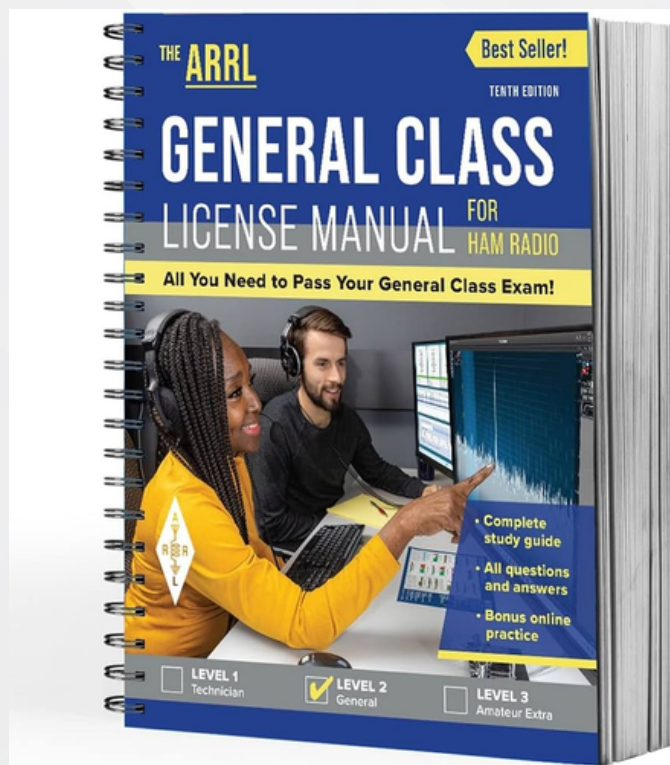


Photo by: amazon.com

Log, Listen, and Experiment

Keeping a station log, whether on paper or electronically, helps track progress, propagation trends, and operating habits.

Even more importantly, successful hams cultivate curiosity. Amateur radio thrives on experimentation, whether building antennas, decoding digital signals, or exploring late-night propagation.

Conclusion

The Technician license is not an endpoint; it is an invitation. Whether your interests lie in public service, satellites, digital modes, or future HF operation, amateur radio offers a lifetime of learning and service.

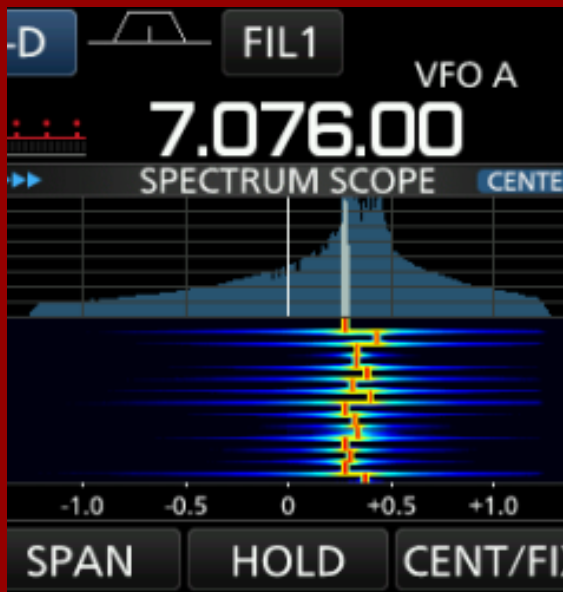
Your first transmission may be brief, but it marks the beginning of a long and rewarding journey.

"[Callsign] listening."

**A bag, a dream, and the mountain
The passion for ham radio knows no limits.**



OLIVIA



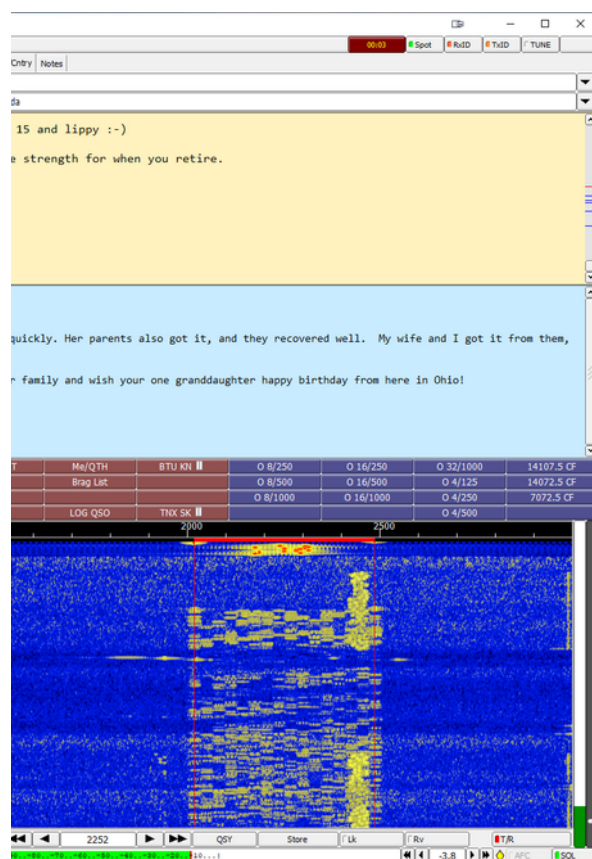
A RELIABLE DIGITAL MODE FOR CHALLENGING CONDITIONS

By: Abimael Padro KP4RY

Hello, ham friends! Today I want to tell you about a digital mode that, as I always say, seems both complicated and simple at the same time: Olivia. This mode has been a true lifesaver for many hams, especially when propagation conditions aren't on our side.

Olivia is a digital text mode based on multiple tones (MFSK). What does that mean in simple terms? Well, instead of sending your message as a single continuous signal, Olivia breaks it into multiple different tones that work together to transmit the information. This allows the receiver to reconstruct

the entire message error-free, even if the signal is very weak or there's a lot of band noise. It's like sending your words in small packets through a storm, and each packet arrives safely.



What makes Olivia special is its robustness against interference and weak signals. With other digital modes, like FT8 or PSK31, if the signal drops too low, the contact can be lost. But Olivia keeps working even with signals below the noise level. This makes it ideal for long-distance (DX) contacts, QRP (low-power) transmissions, or simply experimenting when propagation is being “playful.”

Now, let me share something that always makes me laugh. Once I was transmitting in Olivia and, as I usually do, I told my fellow hams: “I’m on Olivia.” Well, some thought I meant Olivia, Popeye’s girlfriend! They started sending jokes in the chat, asking if I was sending messages while eating spinach, if Popeye was listening, or if I’d need his boat to reach the contact. Amid the laughter, I had to clarify: “No, folks, I’m transmitting in Olivia digital mode, not cartoons.” That story is always a good reminder that ham radio blends seriousness with fun.

Now, let’s talk a bit about how to operate Olivia. First, you need software that supports the mode, such as Fldigi, MixW, or RUMlogNG. You set the transmission speed and the number of tones: for example, Olivia 8/250 uses 8 tones with 250 ms per symbol, while Olivia 16/500 uses 16 tones with 500 ms per symbol. The higher the number of tones and the longer the symbol duration, the more reliable the transmission, though it will be slower. The key is to experiment: try different combinations and see which works best with your antenna, power, and propagation conditions.

To transmit, you connect your radio to the computer via an audio interface (or a compatible sound cable), select the Olivia mode in the software, type your message, and press “Transmit.” The software encodes your words into tones and sends the signal through your radio. On the other end, the receiving operator with compatible software decodes

the signal, reconstructing your message almost magically, even if they can barely hear your transmission. It’s a mode that requires patience and practice but rewards you with successful QSOs where other modes might fail.

Another advantage of Olivia is that it allows long messages and digital QSLs. Since the transmission is reliable, you can send more extensive information than with very fast, narrow modes like FT8. Many hams use it for nighttime contacts, DX on low bands, or simply to experiment with digital modes without relying on repeaters or the internet.

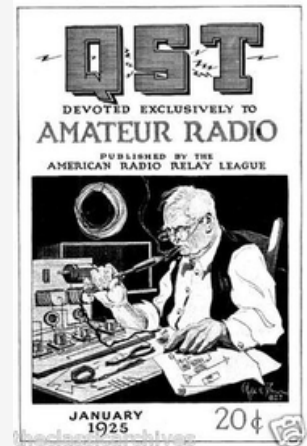
So, the next time you hear someone say they’re on Olivia, remember: they’re not talking about Popeye, but about a digital mode that combines robustness, patience, and fun, perfect for making reliable contacts even in difficult conditions. And as I always say: “it seems complicated, yet easy at the same time.” All it takes is a little practice, curiosity, and good humor... and maybe a few jokes with colleagues about confusing Olivia with Popeye’s friend.

In short, Olivia is a digital text mode for reliable communication under adverse conditions, ideal for DX, QRP, and experimentation. With the right software and a bit of patience, any ham can master it and enjoy QSOs where other modes simply fail. Time to get practicing and always remember to enjoy the journey!

DID YOU KNOW?

History of Radio in 100 Words

¿POR QUÉ LA REVISTA DE ARRL SE LLAMA QST?

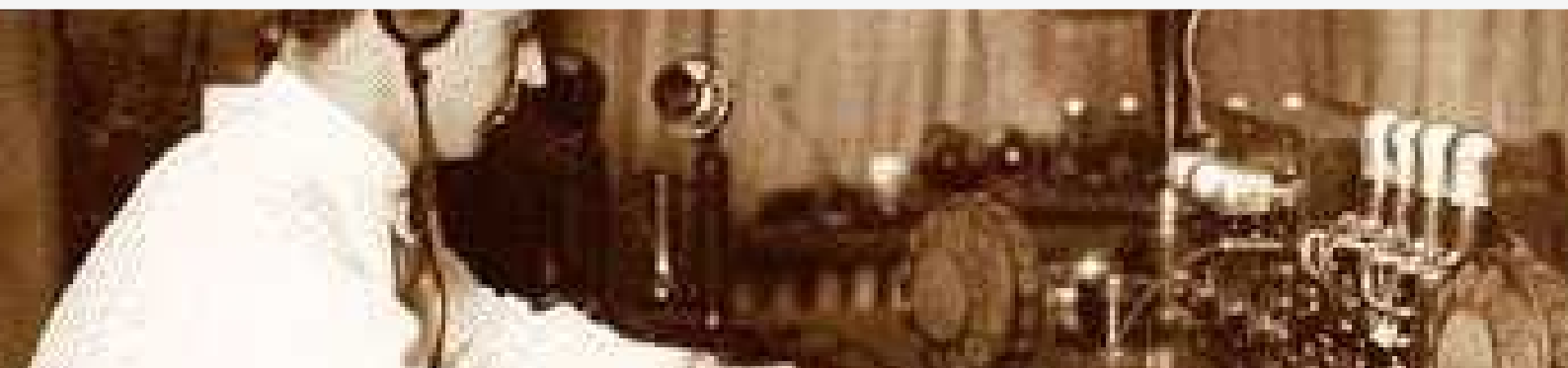


Many amateur radio operators have read QST magazine for years without really knowing where its name comes from.

The term QST predates the magazine. In the early days of radiotelegraphy, it was used as a signal meaning “Attention all stations.” It was sent before important announcements or bulletins addressed to multiple operators.

When the American Radio Relay League launched its magazine in 1915, it chose the name QST because it perfectly represented its purpose: to capture the attention of the amateur radio community with news, technical developments, and operating practices.

More than a century later, the magazine published by the American Radio Relay League still proudly carries this historic name.





GEOGRAPHY AND RADIO

Learning Maps and Routes with VHF and UHF



By: Julio Mercado WP4PUX

Working as a delivery driver for FedEx has given me the chance to travel through practically every municipality in Puerto Rico, from the busiest towns to the hidden corners few know. But I'm not alone on the road: my ham radio hobby goes with me on every delivery. With my handy in hand, ready for VHF and UHF, the van turns into a mobile station connecting me with fellow operators, local repeaters, and, of course, a good dose of humor that makes any traffic jam more enjoyable.

What's fascinating about operating on VHF and UHF is their efficiency for mobile communications. These bands are ideal for short to medium distances, offering clear voice, minimal interference, and high reliability. Their propagation mainly depends on line-of-sight, so knowing the local geography is key: hills, valleys, and tall buildings can greatly affect signal quality. Each obstacle is a small technical challenge that forces me to adjust the antenna, switch repeaters, or change the orientation of my handy all while keeping a steady grip on the wheel and trying not to laugh at my own jokes.



For hams who want to operate on the road, I recommend several practical strategies that really work in Puerto Rico. First, use compact, well-matched antennas, like vehicle magnet-mounts or portable verticals with a good gain-to-length ratio. Keeping your handy within reach and adjusting power according to distance and the repeater helps optimize battery life and avoid unnecessary interference. A small portable SWR/ROE meter can be very handy to make sure your antenna stays properly tuned, especially after changes in terrain or long stops. I also always recommend having a backup repeater or a group of fellow hams you can quickly reach if your signal drops, redundancy on the move never hurts.





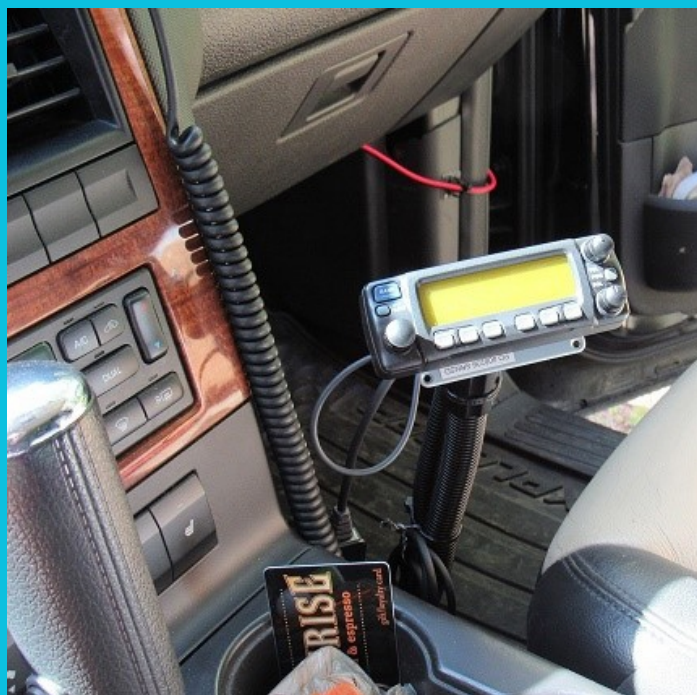
Mobile Radio Tips for VHF/UHF

- Reliable handy and properly tuned antenna.
- Keep line-of-sight and adjust power according to the repeater.
- Local repeaters: your best ally in every town.
- Portable SWR meter helps optimize your signal.
- Don't forget the humor! Every QSO is an adventure and some laughs on the road.



Every QSO on the road is a little adventure. A “Greetings from Hatillo!” or a joking comment about the route to Arecibo sparks laughter and strengthens camaraderie among hams. I can quickly link to local repeaters, test different frequencies, and learn how geography affects VHF/UHF propagation in each municipality. Ham radio doesn't just accompany me at work; it turns every delivery into a dynamic experience. While completing my deliveries, I am practicing efficient communication, technical adjustments, and terrain observation.

My mobile station is simple but highly effective: a reliable handy, a well-tuned antenna, and a bit of creativity. The key is keeping line-of-sight, selecting strategic repeaters, and taking full advantage of the efficiency and clarity of VHF/UHF, which allow fast and reliable communications even in densely populated areas or places with natural obstacles. Mobility also lets me develop technical and social skills simultaneously: adjusting antennas, testing power levels, and of course keeping a friendly conversation with fellow operators on the air, always with some laughs included.



At the end of the day, every kilometer traveled becomes a hands-on lesson in geography, signal propagation, and effective communication. Even though my main job is delivering packages, ham radio reminds me that with curiosity, skill, and a sense of humor, any route can turn into an educational, exciting, and memorable experience. Whether I'm in a central municipality or a hidden little town, every contact, every antenna adjustment, and every repeater explored makes the road more fun and keeps ham radio as my inseparable companion.



THE ANTIDOTE

By: Daniel Stevenson W7RLA



Photo by: dummies.com

The World We Live In

We live in an extraordinary era. Communication is instant, entertainment is at our fingertips, and convenience dominates our daily lives. The virtual has begun to replace the physical, and anything that isn't fast and efficient feels like a hassle. This is the cultural current we live in.

There is no doubt that these advances have brought real benefits: life-saving technologies, economic growth, immediate access to information, and unprecedented global connectivity. Many of the comforts we enjoy today would have been unimaginable to previous generations. However, this convenience has not come without a cost.

What We Are Losing

As we move forward, we are also losing something important. Patience, focus, and the ability to wait for meaningful results

are disappearing. It is becoming increasingly difficult to sustain the effort needed to solve complex problems, build something from scratch, or find satisfaction in gradual progress.

Fundamental aspects of human life are also weakening: genuine friendship, mentorship, deep conversation, and real connection between people. Constant exposure to screens, algorithms, and instant stimuli has created distraction, anxiety, and a growing disconnection from the physical world. We live in a sort of tension between the virtual and the tangible. The digital world presents itself as more efficient, clean, and advanced, while the real world, slower and limited, seems like something many try to avoid. It is in this context that ham radio offers a different kind of alternative.

Mystery and Art

Ham radio moves in the opposite direction of this current. Here, you cannot speed up physics or skip the process. There are no shortcuts. The operator must wait for the right conditions, adjust their





Photo by: Wikipedia

equipment, and work with what is available. In this hobby, we learn that everything requires compromise: from antennas to the time we have available. And when something fails, which is inevitable, it becomes an opportunity to investigate, learn, and try again.

There is also an element of mystery that makes it fascinating. Electromagnetic waves, invisible, travel long distances, bounce off the ionosphere, and return to Earth. Sometimes the signals come through clearly; other times they get lost in the noise. Bands can be full of activity or completely silent. No matter how much you invest in your station, you call CQ and wait. That wait is full of anticipation, but also of frustration. Yet when a signal answers, even if weak, the satisfaction is real and profound.

This experience shapes character. It teaches careful listening, learning through practice, and accepting that mistakes are part of the process. Experimentation, building, and continuous improvement are essential. Mentorship becomes valuable, and authentic conversations, free from filters and algorithms, regain their importance.

Why Standards Matter

Ham radio also teaches important lessons about discipline and community. We learn

that things worth achieving require effort, time, and dedication. Quick and convenient solutions rarely produce lasting or meaningful results. Shared standards are essential because they maintain the cohesion of the community. They help us stay on the same "wavelength," both literally and figuratively. We also learn to accept corrections, understanding that continuous improvement depends on practice, experimentation, and experience.

Real competence is built through effort. Confidence that is not earned rarely endures. Even entry barriers, when properly established, are not tools of exclusion, but structures that preserve meaning, quality, and a sense of belonging.

A Personal Note

Rediscovering ham radio is not simply about finding a technical hobby. It is about discovering a discipline, a community, and a way of thinking. It is an activity that asks something of us, but also gives something valuable in return. It is not perfect, because it is made up of real people and imperfect equipment. But it is precisely in that imperfection that its value lies. In a world that seeks quick solutions and immediate results, ham radio invites us to adopt a different rhythm: slower, more intentional, and more meaningful.

Final Reflection

The next time you get on the air, consider this: be an example of this "antidote." Practice patience instead of haste. Offer mentorship instead of criticism. Seek to explore and experiment rather than consume passively. Accept the time it takes to reach a goal. Do not be afraid to try again after failure. Allow yourself to marvel at something as simple and yet as complex as a signal traveling through the air. In a culture dominated by speed, ham radio reminds us that what is truly valuable takes time. Perhaps we are not out of step with the modern world; perhaps we are exactly in the rhythm we need.

HAM RADIO ZONE



Scott Nacey, KK6IK, shared some exciting news for hams interested in DX. Scott will be activating Svalbard (JW5E), a remote Arctic archipelago governed by Norway, on April 8, 2026, from the Svalbard Amateur Radio Club station.

Svalbard, located at 77° 52' 30" N / 20° 58' 30" E (grid KQ07lv), is famous for its vast glaciers, stunning fjords, and Arctic wildlife, including polar bears and Arctic foxes. During his stay, Scott will operate CW on bands from 40 to 15 meters using his Elecraft KH1 QRP, while enjoying a tour of Norway, Sweden, and Denmark with his wife.

This is a unique opportunity to contact one of the most remote and spectacular locations in the world. Don't miss it!

Hyderabad: Ambarish Nag Biswas, a ham from Kolkata, West Bengal, has been awarded the first-ever Ham Radio Hero award, presented by Orlando HamCation 2026, one of the world's premier amateur radio conventions. This recognition highlights his work in emergency operations, collaboration with law enforcement, and support in reuniting missing persons with their families.

Every year, HamCation presents the Gordon West Ambassador of the Year and the Carole Perry Educator of the Year awards, and for 2026, a new category was introduced: Ham Radio Hero of the Year.



Luis de la Vega, KP4WI: A Pillar of Ham Radio in Puerto Rico
Puerto Rico has been home to exceptional amateur radio operators who have left an indelible mark on our community, and among them stands Luis de la Vega, KP4WI. For many years, Luis served as Puerto Rico's QSL Manager, a key role that involved coordinating and distributing QSL cards for operators across the island and for international contacts.

His dedication not only facilitated the exchange of confirmations between hams but also strengthened bonds of camaraderie and collaboration within the community. Luis was widely recognized for his efficiency, patience, and commitment, always ready to serve and support operators, both newcomers and seasoned veterans alike.

HAM RADIO ZONE

SORA Patna Conducts Field Day-Style HF Operation from the Ganges River

Patna, India — March 23, 2026 — The Society of Radio Amateurs (SORA) of Patna organized a two-day Field Day-style HF operation on March 21-22, 2026, from boats anchored in the Ganges River, in collaboration with Floatafe Cruises. The goal of the exercise was to operate HF stations from a floating platform under portable and limited conditions, simulating real emergency communication scenarios.

The stations were equipped with Alinco DX-SR8T and Yaesu FT-897 HF transceivers. Wire antennas were set up for the 20- and 40-meter bands, carefully adapted to the limited deck space available on the boats. Stations operated at approximately 80 watts output, with power supplied by onboard generators.

Despite the inherent challenges of operating from a floating platform, including limited antenna height, restricted radial systems, RF grounding difficulties, and vessel movement, the stations performed reliably. Operators reported stable SWR and effective radiation on both bands. Operations were conducted mainly on the 20- and 40-meter HF bands using SSB. Contacts were established with stations in India, Japan, China, and Indonesia, demonstrating solid regional propagation over water paths. The river environment likely contributed to better ground conductivity, supporting efficient signal propagation.



This activity provided valuable hands-on experience in setting up portable stations, deploying antennas in confined environments, operating with generators, and conducting HF communications under field conditions. Exercises like this are essential for emergency preparedness, where hams may be called upon to deploy stations in unconventional settings.

During the event, Ms. Bharathi Prasad (VU2RBI) received the Lifetime Achievement Award from SORA, in recognition of her outstanding contributions to amateur radio. Rajni Mohan (VU2HW) and T. K. Chatterjee (VU2TKC) were also recognized for their contributions. The President's Award was presented to Ajay Sinha (VU2VFC) for his consistent on-air activity and support of SORA initiatives.

The event concluded successfully, demonstrating the adaptability of amateur radio operators and the effectiveness of HF communications from a portable station in a river environment.

73 and 88

Ms. Sumita Sahi, VU2IO

President, SORA Patna

Pranav Sahi, VU2XH

Founding Member, SORA



SWR



Photo by: NU4E